



## **LIFE ASSURANCE EXPLAINED**

IMP. AUTHOR.

## BOURNE'S INSURANCE DIRECTORY.

CONTAINING

Revenue Accounts, Valuation Returns, Bonus Results and Premium Rates  
of all Life Offices doing business in the United Kingdom, Mortality  
and Interest Tables, Directory of Insurance Companies,  
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# LIFE ASSURANCE EXPLAINED.

## REFERENCE

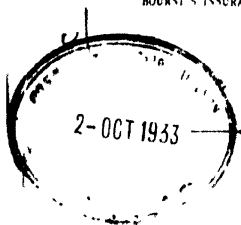
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## P R E F A C E.

My aim in this little book has been to explain with the utmost clearness the main principles upon which Life Assurance is based. Something like twenty-five millions are paid by Policy-holders to British Insurance Companies alone every year, while the Policies in force at the present time amount to nearly seven hundred million sterling. But it is probable that these figures, large as they seem, would have been considerably larger if the public had a fuller knowledge of the basis of Life Assurance and a keener appreciation of the great benefits assurance can offer, and of the inherently strong position of most Insurance Companies.

With a view to making accessible such knowledge as is too frequently lacking, the following pages have been written. In the earlier chapters questions of Mortality and Interest have been dealt with, showing how premiums for assurance can be ascertained, and illustrating by concrete examples how the premiums arrived at suffice to meet the liabilities incurred. In the course of these explanations it is natural to deal with the question of reserves, and to state the reasons why Assessment Insurance cannot be a permanent success.

Sources of surplus are next dealt with and clearly illustrated by means of a few simple tables of a novel character. Various methods in accordance with which the surplus is distributed to Policy-holders are then described ; mention is next made of the different kinds of Policies that are issued, the principles upon which they are based, and the special circumstances they are designed to meet. After describing the chief matters to which attention should be paid in the selection of an office, practical hints are given as to the way in which Assurance may be effected. Reference is made to such points as medical examination, proof of age, the necessity of full and correct replies

to the questions contained on the application forms, the settlement and assignment of Policies, and the principal Policy conditions; regulations as to female risks, invalid lives, foreign residence and travel, the mode of procedure in regard to proofs of death and settlement of claim, and many other points which are familiar matters to the insurance man, but sources of difficulty to the uninitiated, are clearly explained.

No knowledge of mathematics is required for the complete comprehension of the whole of the book. Nothing is needed beyond the most simple arithmetic, accompanied by a little care and attention in reading; while those who do not care for a short explanation of the principles of Assurance may find the practical chapters, from "the choice of a policy" to the end of the book, of some interest.

Throughout the entire book no mention is made of individual companies, but in the Appendix the Offices themselves have been invited to make short statements of the principal points they wish to bring before the notice of the insuring public. For the statements in this Appendix I do not hold myself liable, each company being alone responsible for the statements made in regard to it. The reason for taking this course was that the book might be of as much service as possible to the insuring public. Hence it is written in an entirely impartial manner, and in no way advocates the claims of any particular Company or class of Companies. The only departure from this principle, if departure it may be called, is the statement that I have no belief in Assessment Companies, and consequently no such Offices have been given the opportunity to state their case in the Appendix.

I make no apology for publishing another book, for I feel confident that such a work as this is wanted and does not exist. I trust that it may prove of considerable service to a large number of the public, and possibly to some of my many friends in the insurance world as well.

WILLIAM SCHOOLING.

*Christchurch Road,  
Surrey.*



# LIFE ASSURANCE EXPLAINED

## MORTALITY.

NEARLY every policy issued by a Life Assurance Company is dependent upon the duration of the life or lives assured, and before it is possible for a company to know how much it must receive in consideration of undertaking to pay a given amount at death, it is necessary for the company to know at what time the lives upon whose deaths the payments depend will cease. This information is obtained from Mortality Tables which are based upon observations on large numbers of lives, and record the numbers living and dying at each age.

The most usual Mortality Tables employed in Great Britain are those compiled by the Institute of Actuaries, and which are known as the Healthy Males Table (usually written  $H^m$ ), Healthy Females ( $H^f$ ), Healthy Males and Females ( $H^{mf}$ ), and the Healthy Males Table excluding from observation the first five years of assurance ( $H^{m(s)}$ ). These tables are based upon the experience of twenty Life Assurance Companies, and for the present are the most satisfactory tables for all ordinary assurance transactions.

There are, however, other Mortality Tables which have been largely used in the past, and are still employed for certain purposes. One of the most important is the *Carlisle Table*, published early in this century which was

based upon the experience of the city of Carlisle; it is still used to a certain extent in dealing with annuities. Another table of much importance in connection with Industrial Assurance is the English Life Table No. 3, based upon the return of the two censuses of 1841 and 1851, embracing 50,000,000 of persons living and 6,500,000 deaths.

The fundamental facts which a Mortality Table supplies us with are the numbers living at each age from the earliest to the latest year included in the table, and the numbers dying in each year. From these two series of facts all the information in regard to mortality that is required for Life Assurance can be obtained. Let us suppose now that there are 10,000 people, all at the age of 40, who wish to arrange for a payment of £100 to the executors of such of them as may die before reaching the age of 41. The Mortality Table informs us that 103 of these people will die during the year, and as the death of each person involves the payment of £100, the sum of £10,300 will be required to meet the claims arising out of these 103 deaths. It is therefore necessary for each of the 10,000 persons to pay £1·03, or £1 0s. 7d., in order to secure the payment of £100 to their executors, should death occur within the year. This leaves out of account any benefits that may be obtained by interest earned upon the £10,300 before being required for the payment of the claims, and takes no notice of the necessary expenses of transacting the business, but it shows clearly the use of the Mortality Table. If we had no experience to guide us as to the number of people who would die within the year, we might either charge too large an amount for the assurance, or we might charge too small a sum, and not have enough money available to meet the claims when they became due. In the instance just given, the £100 is the sum assured, the £1·03 paid to

secure the sum assured in the event of death is called the premium, and a policy of this nature is called a Term Policy for one year. The premiums paid by those who did not die were used in paying the claims arising from the deaths that occurred, and the value received by the survivors for the premiums of £1.03 was the certainty of their heirs receiving £100 should the assured die. Had the lives to be insured for one year been aged 18 instead of 40, a premium of about 10s. in each case would have been sufficient, because only 48 out of the 10,000 would have died instead of 103, while had the lives been 54 years of age, a premium of about £2 would have been necessary, because 197 deaths would have occurred during the year.

This makes it apparent that it would be possible to arrange for assurance to be effected at a premium that would increase year by year as the life assured grew older. This system, however, involves premiums at the older ages that are so high as to practically prohibit most people from undertaking to pay them. It is therefore found convenient in the great majority of cases to pay at the commencement a higher rate than is required for a single year, in order that the payments later on in life may be less than the premium required for a single year. The amounts paid in excess of that required to meet the claims of each year, together with the interest upon them, provides a fund that makes up for the deficiency that would otherwise occur through the premiums paid at the later ages being less than the amount required to meet the claims arising from deaths at these older ages.



# LIFE ASSURANCE EXPLAINED.

## INSTITUTE OF ACTUARIES MORTALITY TABLE. HEALTHY MALES (Hm).

Age at Beginning of Year.	Number Living at Beginning of Year.	Number Dying during the Year.	Probable Number out of every 100 Alive at the Beginning of a Year		Average Duration of Life at Age stated.	Age at Beginning of Year.
			who will Survive the Year.	who will Die during the Year.		
1	2	3	4	5	6	7
10	100 000	490	99 5100	4900	50 291	10
11	99 510	397	99 6010	3900	49 536	11
12	99 113	329	99 6681	3319	48 733	12
13	98 784	288	99 7085	2915	47 893	13
14	98 496	272	99 7238	2762	47 632	14
15	98 224	282	99 7129	2871	46 161	15
16	97 942	318	99 6753	3217	45 292	16
17	97 624	379	99 6118	3882	44 438	17
18	97 245	466	99 5208	4792	43 609	18
19	96 779	556	99 4255	5715	42 817	19
20	96 223	609	99 3671	6329	42 061	20
21	95 614	643	99 3275	6725	41 326	21
22	94 971	650	99 3156	6814	40 603	22
23	94 321	638	99 3236	6764	39 879	23
24	93 683	622	99 3361	6639	39 147	24
25	93 061	617	99 3370	6630	38 405	25
26	92 444	618	99 3315	6685	37 658	26
27	91 826	631	99 3096	6904	36 908	27
28	91 192	654	99 2828	7172	36 162	28
29	90 538	673	99 2567	7433	35 419	29
30	89 865	694	99 2277	7723	34 681	30
31	89 171	706	99 2083	7917	33 946	31
32	88 465	717	99 1895	8105	33 213	32
33	87 748	727	99 1715	8285	32 481	33
34	87 021	740	99 1496	8504	31 748	34
35	86 281	757	99 1226	8774	31 016	35
36	85 524	779	99 0891	9109	30 286	36
37	84 745	802	99 0536	9464	29 500	37
38	83 943	821	99 0220	9780	28 838	38
39	83 122	838	98 9918	1 0082	28 118	39
40	82 284	848	98 9694	1 0306	27 399	40
41	81 436	854	98 9513	1 0487	26 679	41
42	80 582	865	98 9266	1 0734	25 956	42
43	79 717	887	98 8873	1 1127	25 233	43
44	78 830	911	98 8444	1 1556	24 511	44
45	77 919	950	98 7908	1 2192	23 792	45
46	76 969	996	98 7060	1 2940	23 079	46
47	75 973	1 041	98 6298	1 3702	22 375	47
48	74 932	1 082	98 5580	1 4440	21 679	48
49	73 850	1 124	98 4780	1 5280	20 980	49
50	72 736	1 160	98 4050	1 5950	20 306	50
51	71 566	1 193	98 3339	1 6679	19 637	51
52	70 373	1 235	98 2451	1 7648	18 951	52
53	69 138	1 268	98 1400	1 8339	18 281	53
54	67 832	1 330	98 0268	1 9736	17 618	54

# MORTALITY

## INSTITUTE OF ACTUARIES MORTALITY TABLE HEALTHY MALES (H<sup>m</sup>).

Age at Begin- ning of Year.	Number Living at Beginning of Year.	Number Dying during the Year.	Probable Number out of every 100 Alive at the Beginning of a Year		Average Duration of Life at Age stated.	Age at Begin- ning of Year.
			who will Survive the Year.	who will Die during the Year.		
1	2	3	4	5	6	7
55	66 513	1 399	97'8967	2'1033	16'962	55
56	65 114	1 462	97'7547	2 2453	16'316	56
57	63 652	1 527	97'6010	2 3990	15'679	57
58	62 125	1 592	97'4374	2'5626	15 052	58
59	60 533	1 667	97'2161	2'7839	14'435	59
60	58 866	1 747	97'0322	2'9678	13'830	60
61	57 119	1 830	96'7962	3'2038	13'237	61
62	55 289	1 915	96'5364	3'4636	12 659	62
63	53 374	2 001	96 2510	3'7490	12'095	63
64	51 373	2 076	95'9590	4'0410	11 517	64
65	49 297	2 141	95'6560	4'3431	11'012	65
66	47 156	2 196	95'3431	4'6569	10'489	66
67	44 960	2 243	95 0111	4'9889	9'977	67
68	42 717	2 274	94'6766	5'3234	9'475	68
69	40 443	2 319	94'2660	5'7340	8'980	69
70	38 124	2 371	93'7808	6 2192	8'495	70
71	35 753	2 433	93'1950	6'8050	8'026	71
72	33 320	2 497	92'5060	7'4910	7'575	72
73	30 823	2 554	91'7110	8'2300	7'118	73
74	28 269	2 578	90'8805	9'1195	6'749	74
75	25 691	2 527	90'1639	9'8361	6 376	75
76	23 164	2 461	89'3629	10'6372	6'017	76
77	20 700	2 374	88'5311	11'4086	5 671	77
78	18 326	2 258	87'6787	12'2213	5'344	78
79	16 068	2 138	86 0941	13'0659	5'025	79
80	13 930	2 015	85'5318	14'4652	4'719	80
81	11 915	1 883	84'1964	15'8036	4'433	81
82	10 032	1 719	82'8648	17'1352	4'171	82
83	8 313	1 545	81'4117	18'5853	3'930	83
84	6 768	1 346	80'1123	19'8877	3'713	84
85	5 422	1 138	79'0115	20'9885	3'511	85
86	4 284	941	78'0345	21'9655	3'310	86
87	3 313	773	76 8770	23'1230	3'101	87
88	2 570	615	76'0700	23'9300	2'884	88
89	1 965	495	74'6804	25'3196	2 634	89
90	1 460	408	72'0348	27'9452	2 357	90
91	1 052	329	68'7863	31'2737	2 077	91
92	723	254	64'9686	35'1314	1'785	92
93	469	195	56'4222	41'5778	1'496	93
94	274	139	46'2700	50'7300	1'204	94
95	135	86	36'2664	63'7336	930	95
96	49	40	18'2673	81'7327	664	96
97	9	9	00'0000	100'0000	590	97

The accompanying table gives in the second and third columns the numbers living and the deaths each year, according to the Healthy Males ( $H^m$ ) Mortality Table published by the Institute of Actuaries, the age of the life at the beginning of the year being given in the first column. The information upon which the Mortality Table is based was not considered sufficiently extensive for the first ten years of life to give reliable average results, and, therefore, the table commences with age ten. The fourth column gives the number out of every hundred alive at the commencement of the year who survive the entire year. The fifth column shows the number who die in the course of the year out of every hundred living at the commencement of it, so that the figures in columns 4 and 5 at each age together make up 100.

The sixth column gives the expectation, or average duration, of life as determined by dividing the total number of years that a given number of people will live by the given number of people under observation. Thus, if we examine the table from age 90, we see that of 1,460 living at age 90

1,052	reach the age of 91
723	reach the age of 92
469	reach the age of 93
274	reach the age of 94
135	reach the age of 95
49	reach the age of 96
9	reach the age of 97

Total ...	2,711
-----------	-------

Adding together the number who survive to the different ages we find that the 1,460 people with which we commenced, live between them 2,711 complete years, and dividing this number by 1,460, we get an average of 1.857 complete years as the duration of life of each of the 1,460.

people whom we commenced to observe at the age 90. This, however, considers only the *entire* years that are survived ; lives that live to 91 years and 11 months are treated as if they only lived to 91. It is, however, much more likely that the deaths will be fairly evenly distributed throughout the year, and they may, therefore, be reckoned as happening in the middle of each year.

In these figures, therefore, we are reckoning that each one of the lives under observation would live six months less than would actually be the case, and if we add this half-year to the 1·857 years, we arrive at 2·357, which is the average expectation of life given in column 6.

We sometimes hear of the Curtate (or cut short) expectation of life, which means the number of *complete* years of life which people of the given age may, on the average, expect to live ; the Curtate expectation of life at age 90 is the 1·857 years which we obtained above, and it is always half a year less than the complete expectation of life given in column 6.

## INTEREST.

In the practice of Life Assurance, interest is a very important factor, and it is necessary to see clearly what interest means before the subject of Life Assurance can be properly understood. It only requires a very moderate amount of attention to obtain a clear view of the subject.

If Jones lends Smith £100, for the use of which Smith has to pay £3 every year, it is plain that at the end of one year Smith will owe Jones £103. If Smith pays this £3 due on account of interest, he will only have a loan of £100 during the second year, for the use of which he will have to pay £3 as before. If, however, after Smith pays the £3, Jones lends him this £3 in addition to the £100, obviously Smith has to pay for the use of £103 instead of only £100, and this amounts to £3·09 or £3 1s. 9½d. It is just the same if the amount of the interest is added to the loan without being paid at all, and if this process is continued year after year, the amount quickly increases. Thus in the

year the loan is £100		and the interest £3.	
1st	"	£103	" " £3 09 or £3 1s. 10d.
2nd	"	£106·09	" " £3·1827 or £3 3s. 8d.
3rd	"	£109·2727	" " £3·278181 or £3 5s. 7d.
4th	"	£112·550881, and so on,	increasing rapidly as time goes by.

This is what is meant by the amount of £100 at compound interest for a number of years as given in column 2 of the annexed table. The interest instead of being paid

annually, is compounded for by being added to the loan, and hence the name compound interest.

The rate of interest earned by the money makes a great deal of difference in the course of a long term of years. Thus £100 earning 3 per cent. per annum will amount in 50 years to £438 or £338 more than the original investment; at 6 per cent. the £100 would in the same time amount to £1,842 or £1,742 more than the original sum; the *rate of interest* is only twice as much, but the *amount of increase* is more than five times as great.

We often want to know in connection with Life Assurance, not merely what £100 will amount to at a given rate of interest in a certain number of years, but also how much we must lend or invest now so that in a certain number of years it will, at a given rate of interest, increase to £100. This is called the present value of £100 due so many years hence at such a rate per cent. This can readily be found from the table already referred to; we saw that £100 in 50 years amounted at 3 per cent. to £438, therefore the present value of £438 due in 50 years at 3 per cent. is £100. The present value of £1 due in the same time at the same rate is the 438th part of £100 or £0·228, that is, about 4s. 7d. If the present value of £1 is £0·228 or 4s. 7d., the present value of £100 is £22 8 or £22 16s. It is convenient, however, to have the amounts worked out, and they are given in column 3 of the table, from which we see, for instance, that the present value of £100 due in 40 years at 3 per cent. is £30·06 or £30 13s. 1d., which means that £30·66 invested now and compounded annually at 3 per cent. would in 40 years amount to £100.

INTEREST TABLE.—3 Per Cent.

Years	ONE POUND.		ONE POUND PER ANNUM.		Years.
	Amount at end of year.	Present value due at end of year	Amount at beginning of year	Present value due at beginning of year.	
1	£ 1 0300	£ 9709	£ 1 0000	£ 1 0000	1
2	1 0609	9426	2 0300	1 9709	2
3	1 0927	9151	3 0909	2 9135	3
4	1 1255	8885	4 1836	3 8286	4
5	1 1593	8626	5 3091	4 7171	5
6	1 1941	8375	6 4684	5 5797	6
7	1 2299	8131	7 6625	6 4172	7
8	1 2668	7894	8 8923	7 2303	8
9	1 3048	7664	10 1591	8 0197	9
10	1 3439	7441	11 4638	8 7861	10
11	1 3842	7224	12 8078	9 5302	11
12	1 4258	7014	14 1920	10 2526	12
13	1 4685	6810	15 6178	10 9540	13
14	1 5126	6611	17 0863	11 6350	14
15	1 5580	6419	18 5989	12 2961	15
16	1 6047	6232	20 1569	12 9379	16
17	1 6528	6050	21 7616	13 5611	17
18	1 7024	5874	23 4144	14 1661	18
19	1 7535	5703	25 1169	14 7535	19
20	1 8061	5537	26 8704	15 3238	20
21	1 8603	5375	28 6765	15 8775	21
22	1 9161	5219	30 5368	16 4150	22
23	1 9736	5067	32 4529	16 9369	23
24	2 0328	4919	34 4265	17 4436	24
25	2 0938	4776	36 4593	17 9355	25
26	2 1566	4637	38 5530	18 4131	26
27	2 2213	4503	40 7096	18 8768	27
28	2 2879	4371	42 9309	19 3270	28
29	2 3566	4243	45 2189	19 7641	29
30	2 4273	4120	47 5754	20 1885	30
31	2 5001	4000	50 0027	20 6004	31
32	2 5751	3883	52 5028	21 0004	32
33	2 6523	3770	55 0778	21 3888	33
34	2 7319	3660	57 7302	21 7658	34
35	2 8139	3554	60 4621	22 1318	35
36	2 8983	3450	63 2759	22 4872	36
37	2 9852	3350	66 1742	22 8323	37
38	3 0748	3252	69 1594	23 1672	38
39	3 1670	3158	72 2342	23 4923	39
40	3 2620	3066	75 4013	23 8083	40
41	3 3599	2976	78 6633	24 1148	41
42	3 4607	2890	82 0232	24 4124	42
43	3 5645	2805	85 4830	24 7014	43
44	3 6715	2721	89 0464	24 9819	44
45	3 7816	2644	92 7159	25 2543	45
46	3 8950	2567	96 5015	25 5187	46
47	4 0119	2493	100 3965	25 7754	47
48	4 1323	2420	104 4034	26 0247	48
49	4 2563	2350	108 5260	26 2677	49
50	4 3839	2281	112 7680	26 5047	50

INTEREST TABLE.—4 Per Cent.

Years.	ONE POUND.		ONE POUND PER ANNUM.		Years.
	Amount at end of year.	Present value due at end of year.	Amount at beginning of year.	Present value due at beginning of year.	
	£	£	£	£	
1	1 0400	9615	1 0000	1 0000	1
2	1 0816	9246	2 0400	1 9615	2
3	1 1249	8890	3 1216	2 8861	3
4	1 1699	8548	4 2464	3 7761	4
5	1 2167	8219	5 4163	4 6299	5
6	1 2653	7903	6 6330	5 4518	6
7	1 3159	7599	7 8883	6 2421	7
8	1 3686	7307	9 2142	7 0021	8
9	1 4233	7026	10 5828	7 7327	9
10	1 4802	6756	12 0061	8 4353	10
11	1 5395	6496	13 4864	9 1109	11
12	1 6010	6246	15 0258	9 7606	12
13	1 6651	6006	16 6288	10 3861	13
14	1 7317	5775	18 2919	10 9856	14
15	1 8009	5553	20 0236	11 5681	15
16	1 8730	5339	21 8245	12 1184	16
17	1 9479	5134	23 6975	12 6523	17
18	2 0258	4936	25 6451	13 1657	18
19	2 1068	4746	27 6712	13 6593	19
20	2 1911	4564	29 7781	14 1330	20
21	2 2788	4388	31 9692	14 5903	21
22	2 3699	4220	34 2480	15 0292	22
23	2 4647	4057	36 6179	15 4511	23
24	2 5633	3901	39 0826	15 8568	24
25	2 6658	3751	41 6459	16 2470	25
26	2 7725	3607	44 3117	16 6221	26
27	2 8834	3468	47 0842	16 9828	27
28	2 9987	3335	49 9676	17 3296	28
29	3 1187	3207	52 9663	17 6631	29
30	3 2434	3083	56 0849	17 9837	30
31	3 3731	2965	59 3283	18 2920	31
32	3 5081	2851	62 7015	18 5885	32
33	3 6484	2741	66 2096	18 8738	33
34	3 7943	2636	69 8579	19 1476	34
35	3 9461	2534	73 6522	19 4112	35
36	4 1039	2437	77 5983	19 6646	36
37	4 2681	2343	81 7022	19 9083	37
38	4 4388	2253	85 9703	20 1426	38
39	4 6164	2166	90 4091	20 3679	39
40	4 8010	2083	95 0255	20 5846	40
41	4 9931	2003	99 8265	20 7928	41
42	5 1928	1926	104 8195	20 9931	42
43	5 4006	1852	110 0124	21 1866	43
44	5 6166	1780	115 4139	21 3768	44
45	5 8412	1712	121 0294	21 5638	45
46	6 0748	1646	126 8706	21 7480	46
47	6 3178	1583	132 9464	21 9247	47
48	6 5706	1522	139 2698	22 0939	48
49	6 8338	1463	145 8437	22 2561	49
50	7 1067	1407	152 6811	22 4116	50



The majority of Life Assurance policies are effected by means of annual payments, and therefore we often want to know how much an annual payment will amount to in a certain number of years, supposing it to earn interest at a given rate per cent. This information is given in column 4 of the table. If an investment of £100 a year is made at 3 per cent.

At the beginning of the	the loan is £	the year's interest is £	the total at the end of the	is £
1st year	100	3	1st year	103
2nd ..	203	6.09	2nd ..	209.09
3rd ..	309.09	9.27	3rd ..	318.36
4th ..	418.36	12.55	4th ..	430.91

and so on, increasing with very great rapidity.

It will, for instance, be seen from the table that £100 per annum compounded at 3 per cent. will, at the beginning of the twentieth year, amount to £2,687, which helps to make clear why Life Assurance Companies can pay such large amounts at death in return for such comparatively small annual premiums.

But in regard to annual payments, the same as with single amounts, it is often useful to know the present value of the sum they will amount to in a certain number of years at a given rate per cent.

We could calculate this from the columns we have already considered, but it is more convenient to have it worked out ready for use, and this is done in the fifth column of the tables, from which, for example, it may be seen that the present value of £100 a year, compounded annually till the beginning of the twentieth year, is at 3 per cent. interest £1,532; which means that £1,532 invested now at 3 per cent. will exactly suffice to pay £100 at

the beginning of each of 20 successive years, the first payment being made at once.

It will be seen from the headings of the tables that in giving the amount of one pound we select the *end* of the year as the time to reckon to ; while in giving the amount of one pound per annum the *beginning* of the year is referred to ; this is done because it is more convenient for the purposes for which we shall require the tables.

The amount of the present value of one pound at 3 per cent. at the beginning of the tenth year, for instance, is precisely the same as the amount at the end of the ninth, and so in all cases the end of one year is equivalent to the beginning of the year immediately subsequent to it.

In the case of one pound per annum, however, the table gives the amount immediately after a payment, and, therefore, the one pound paid on January 1st must be deducted from the amount shown in the table, in order to obtain the amount on December 31st of the preceding year. Thus the amount of one pound per annum at 3 per cent. at the beginning of the tenth year being £11·4638, or £11 9s. 3d , the amount at the end of the ninth year is £10 9s. 3d., because the one pound due on the first day of the tenth year has not been paid as in the table it is assumed to have been.

The tables give the amount of *one* pound and of *one* pound per annum ; in all cases the amount of any other number of pounds is found by multiplication.

## MORTALITY AND INTEREST.

We are now in a position to combine the results of mortality and interest, and to see how the premiums charged by Life Offices for assurance can be arrived at. The only element of importance that will be omitted from our consideration for the moment is the amount, or "loading" as it is technically called, which is added to the net cost of the assurance, in order to provide for the expense of managing the business, and for the future profits in certain classes of policies. In making the necessary calculations we will assume, for the sake of convenience, that the premiums are all paid at the commencement of the year, and that the claims caused by death always occur at the end of the year, so that one year's interest on the premium paid must be added to the premium, in order to get the exact amount available at the end of the year for the payment of claims.

Let us now re-consider the example given (p. 2) in the chapter on mortality of 10,000 people aged 40, who wish to arrange for a payment of £100 to the executors of such of them as may die before reaching the age of 41. We find from the Mortality Table that 103 of them will die, and that therefore £10,300 will be required at the end of the year to meet the claims arising out of these 103 deaths. On turning to the table showing the amount of £1 at the end of one year at 3 per cent., we find it is £1.03, and the amount of £10,000 is therefore £10,300 ; so it is only necessary for the 10,000 people effecting the assurance to pay this amount *pro rata* between them at the commencement.

ment of the year. Thus the premium that each would have to pay would be £1 instead of the £1·03 which we saw would have been necessary when leaving interest out of the question.

This premium of £1, which would suffice to exactly pay the cost of assurance for one year, and which varies at every age, is called the "natural premium"; but most policies are effected for a longer period than one year, and it is usually desirable to pay a uniform or level premium throughout the whole duration of the policy; and when we want to find out how much this level premium ought to be for assuring for a longer term or for the whole of life, we apply precisely the same principles as we did in calculating the natural premium.

If we look at the Mortality Table, we find that at age 90, out of 1,460 people alive, 408 will die during the year, and therefore if £100 has to be paid on the death of each of these 408 people, we shall require £40,800 at the end of the first year, and the present value of this amount is 408 times the present value of £100 due at the end of one year—namely, £97·0874 multiplied by 408, which equals £39,611; during the second year 329 people will die, involving claims amounting to £32,900, and the present value of this amount due at the end of two years at 3 per cent. interest is £94·2596 multiplied by 329. Following out this method of procedure for each year from age 90 to the end of the Mortality Table, we get the results shown in the following table:—

Table showing SINGLE PREMIUM for WHOLE LIFE Assurance of £100. Age 90 at entry.

H<sup>m</sup> Table, 3 %.

Year	Deaths during year.	Present Value of £100 due at end of year.	Present Value of Claims paid at end of year.
1	408	£ 97 0874	£ 39,611 659
2	329	44 2596	31,011 408
3	254	91 5142	23,244 607
4	195	88 8487	17,325 497
5	139	86 2608	11,990 251
6	86	88 7484	7,202 362
7	40	81 3091	3,252 364
8	9	78 9409	710 468
Total	1,460	. . .	134,348 616

Single Premium £134,348 616 ÷ 1,460 = £92 0196

We see from this that there will be 1,460 claims of £100 each, or £146,000 altogether. But the payment of the claims is so distributed over the eight years as to make the *present value* only £134,349; that is to say, if 1,460 people each paid a lump sum of £92·0196, or £92 0s. 5d., so providing the amount of £134,349 at once, it would be sufficient, with the addition of the interest earned, to pay the claims as they arose. A payment made in this way is called a single premium, and the single premium for all ages, according to the Institute of Actuaries H<sup>m</sup> Mortality Table at 3 per cent., is given on page 24.

It is, however, generally convenient to pay the premiums annually, half-yearly, or quarterly, and we will now see how much the annual premium ought to be to

meet the 1,460 claims, the present value of which is, as we have seen, £134,349. To find out this we will see the present value of the money we should obtain from annual premiums of £1 paid at the commencement of each year by each of the persons who, according to the Mortality Table, would then be alive. Finding out in this way the present value of premiums of £1, it is very easy to calculate how many pounds the premiums ought to be to meet the claims.

If each of the 1,460 people alive at the commencement of the transaction we are considering paid £1, it is plain that the present value of their payments would be £1,460. At the commencement of the second year there are only 1,052 people alive to make payments. The present value of £1 due at the commencement of the second year is the same as the present value of £1 due at the end of the first year—namely, £ 9709. The present value of the premiums paid at the commencement of the second year is therefore 1,052 times this amount, or £1,021. Carrying this calculation throughout the remainder of the years, we get the results shown in the next table. From the total of the amounts in column 4, we see that the present value of premiums of £1 each paid in this way is £4,000; but as we want to provide an amount, the present value of which is £134,349, we have to divide this latter amount by the 4,000, which gives us £33·584553, or £33 11s. 8d., as the premium payable throughout life by persons aged 90 at entry, for the assurance of £100 at death, supposing the money to earn interest at 3 per cent., and the deaths to occur as stated in the Mortality Table.

Table showing ANNUAL PREMIUM for WHOLE LIFE Assurance of £100.

Age 90 at entry. H<sup>m</sup> Table 3 per cent.

Year	Number living at beginning of year.	Present value of £1 due at beginning of year	Present value of £1 per annum from each survivor.	Present value of £33 584553 per annum from each survivor.
(1)	(2)	(3) £	(4) £	(5) £
1	1,160	1 000000	1,460 00000	49,033 444
2	1,052	970874	1,021 35945	34,301 898
3	723	942596	681 49691	22,887 768
4	469	915142	429 20160	14,414 543
5	274	888487	243 44544	8,176 006
6	135	862608	116 45208	3,910 991
7	49	837484	41 03672	1,378 200
8	9	813091	7 31782	245 766
Total	.	.	4,000 31002	134,348 616

Annual Premium  $\text{£}134,348\ 616 \div 4,000\ 31002 = \text{£}33\ 584553.$

In column 5 is shown the present value of premiums of this amount paid at the commencement of each year by the number of persons then living, and the total of these present values is found to be £134,349, the exact equivalent of the amount required to meet the claims arising from death.

As it is very important to get clear ideas on this point, we will show the way in which the premiums received would suffice to exactly meet the claims that would have to be paid. Taking first the single premium of £92 0196 which each of the 1,460 people would have to pay, we find that the

Fund at the commencement of the year is ...	...	...	...	...	£134,349
Interest on this at 3 per cent. is ...	...	...	...	...	£4,030
Together ...	...	...	...	...	£138,379
Less 1,460 claims ...	...	...	...	...	£40,800
Fund at the end of the first year ...	...	...	...	...	£97,579

The following table shows the way in which this principle works out, and it will be seen that at the commencement of the eighth year the fund is £874; the interest earned during the year, £26; making together exactly £900, which suffices to pay the last claim, leaving no funds at all at the close of the transaction.

Table showing how 1,460 Single Premiums of £92 0 196 each, suffice with Interest at 3 per cent to meet 1,460 claims of £100 each Age 90 at entry 11<sup>m</sup> Mortality Table

Year	Funds at beginning of year.	Interest earned in year	Funds plus Interest	Claims of £100 each	Funds at end of year.	Number of Policies in Force at end of year.	Reserve for each Policy.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	£	£	£	£	£		£
1	134,348 616	4,030 458	138,379 074	40,800	97,579 074	1,052	92 756
2	97,579 074	2,927 372	100,506 446	32,900	67,606 446	723	93 508
3	67,606 446	2,028 193	69,634 639	25,400	44,234 639	469	94 317
4	44,234 639	1,327 039	45,561 678	19,500	26,061 678	274	95 116
5	26,061 678	781 850	26,843 528	13,900	12,943 528	135	95 878
6	12,943 528	388 305	13,331 833	8,600	4,731 833	49	96 568
7	4,731 833	111 954	4,843 787	4,000	873 787	9	97 087
8	873 787	26 213	900 000	900	000 000	0	00 000
Total	...	11,651 384	...	146 000	...	...	...
1,460 Single Premiums of £92 0 196 each amount to £134,348 616							
Total Interest earned							11,651 384
							£146,000 000
1,460 Claims of £100 each							£146,000 000

The way in which the annual premium of £33,584 suffices to meet all the claims may also be shown:—

The fund at the commencement of the first year is	...	nil.
1,460 premiums paid the first year amount to	...	£49,033
Together	...	£49,033
Interest earned in the year is	...	£1,471
Total	...	£50,504
Less 408 claims	...	£49,033
Balance at the end of the year...	...	£1,471



To this is added the premiums paid at the commencement of the second year, and the interest earned during the year on both the funds and premiums, the whole amounting to £46,386, from which has to be deducted the £32,900 for claims, leaving the funds £13,486 at the end of the second year, and so on throughout the table until the funds at the commencement of the eighth year amount to £572; the premiums to £302; together £874; the interest on which is £26; together making exactly £900, which is required to meet the last nine claims, and, as in the former case, leaves nothing at all at the close of the transaction.

Table showing how Annual Premiums of £33 584553 each suffice with Interest at 3 per cent to meet claims of £100 each Age 90 at entry H<sup>m</sup> Mortality Table

Year	Fund at beginning of year	Premiums paid at beginning of year.		Funds plus Premiums	Interest earned in year.	Total of Funds, Premiums and Interest	Claims of £100 each	Fund at end of year.	Number of Policies in force at end of year	Reserve for each Policy.
		Number	Amount, £33 584553 each							
1	£ —	1,460	49,033 417	49,033 417	1,471 003	50,504 450	40,800	9,704 450	1,052	9 2248
2	9,704 450	1,052	35,330 950	45,035 400	1,351 062	46,386 462	32,900	13,486 462	723	18 6535
3	13,486 462	723	24,281 632	37,768 094	1,133 043	38,901 137	25,400	13,501 137	469	28 7871
4	13,501 137	469	15,751 155	29,252 292	877 569	30,129 861	19,500	10,629 861	274	38 7951
5	10,629 861	274	9,202 168	19,832 029	594 961	20,426 990	13,900	6,526 990	135	48 3481
6	6,526 990	135	4,533 915	11,060 905	331 827	11,392 732	8,000	2,792 732	49	56 9945
7	2,792 732	49	1,645 613	4,438 375	133 151	4,571 526	4,000	571 526	9	63 5029
8	571 526	9	302 261	873 787	26 213	900 000	900	—	—	—
Total	.. ..		140,081 171		5,918 829	.. ..	146,000	.....	...	..

Total Premiums received . . . . . £140,081 171 = 95 946 %.  
 Total Interest earned . . . . . 5,918 829 = 4 054 %.  
 Premiums and Interest together . . . . . 146,000 000 = 100 000 %.  
 1,460 Claims of £100 each . . . . . 146,000 000

So far we have seen the amount that, paid as a single premium, would suffice to provide the payment of a larger sum at death, and we have seen also the amount that must be paid annually to secure the same object.

connected with these two points is the value of £1 per annum to be paid during the lifetime of a person of a given age; this is called an annuity. This is of importance to those people who wish to secure as large a return as possible for their money during their own lifetime, by paying the principal to an Insurance Company and receiving an annuity for life, the principal becoming the property of the Insurance Company; but besides this, it enters into the calculations in regard to premiums in various ways.

We will, therefore, see how the value of an annuity of £1 per annum for the life of a person aged 90 may be arrived at. In the table showing how the annual premium is arrived at we have all the figures that we require for this purpose, but for the sake of convenience we will repeat them. It is assumed that an annuity is paid at the end of the year (which is equivalent to the beginning of the subsequent year), and not at the beginning of the year, as is the case with annual premiums. Therefore, if we have 1,460 persons aged 90, and have to pay to each of the survivors at the end of the year the sum of £1, we shall, as 408 of them will die during the first year, only have to pay annuities to 1,052 persons, and as the present value of £1 due at the end of a year is £0·970874, the present value of the annuities we shall have to pay the first year is 1,052 times this amount, or £1,021. Tabulating these results for each of the seven years during which the annuities will have to be paid, we find that the total cost of 1,460 annuities is £2,540, and the cost of one annuity is this amount divided by 1,460, or £1·7399.

Table showing the VALUE OF AN ANNUITY of £1 per annum payable at the end of the year to each survivor of 1,460 persons Age 90

Year.	Number living at end of year	Present value of £1 due at end of year.	Present value of £1 to each survivor at end of year.
		£	£
1	1,052	970874	1,021 35945
2	723	942596	681 49691
3	469	915142	429 20160
4	274	888487	243 44544
5	135	862608	116 45208
6	49	837484	41 03672
7	9	813091	7 31782
8	0	.	.
Total			2 540 31002

Total cost of 1,460 Annuities, £2540 31

Cost of 1 Annuity  $\frac{£2,540\ 31002}{1,460} = £1\ 7399384$

In order that this point may be clearly understood, we give a table showing how 1,460 payments of £1 7399 suffice to pay an annuity of £1 at the end of the year to each survivor according to the H<sup>m</sup> Table, assuming interest at 3 per cent. The table is compiled on the same lines as those previously given, and the result shows

That the 1,460 original payments amount to ... .. £2,540 3

That the total interest earned in the seven years is ... .. £170 7

Making the total receipts ... .. £2,711 0

The total amount of annuities paid is ... .. £2,711 0

exactly absorbing the whole of the funds at the close of the transaction

Table showing how 1,460 payments of £1 7399384 each suffice to pay an Annuity of £1 per annum at end of year to each survivor H<sup>m</sup> Table 3 % interest.

Year.	Funds at beginning of year	Interest	Funds plus Interest	Annuities paid.	Funds at end of year.	Annuities remaining in force.	Reserve for each annuity in force.
	£	£	£	£	£		£
1	2,540 310	76 209	2,616 519	1,052	1,564 519	723	2 1639
2	1,564 519	46 935	1,611 454	723	888 454	469	1 8944
3	888 454	26 654	915 108	469	446 108	274	1 6281
4	446 108	13 383	459 491	274	185 491	135	1 3740
5	185 491	5 565	191 056	135	56 056	49	1 1440
6	56 056	1 682	57 738	49	8 738	9	0 9710
7	8 738	262	9 000	9	0 000	0	0 0000
	. .	170 690	.	2,711	.	.....	.....

1,460 payments of £1 7399384 each amount to £2,540 310  
Total Interest earned on Funds . 170 690

Total Receipts . 2,711 000  
Total amount of Annuities paid . 2,711 000

Balance . 0,000 000

The next table is very important, and we shall often have occasion to refer to it. It gives in the second column for every age from 10 to 97 the value of an annuity of £1 payable at the end of the year, which is what we have just been considering for age 90. In the third column we have the amount of the single premium for the assurance of £100 payable at the death of the assured; this was considered in detail for age 90 on page 16. The fourth column gives the uniform annual premium payable throughout life at the beginning of each year for the assurance of £100 at death; this was fully described on page 17. The fifth column gives the "natural premium" at each age for

H<sup>m</sup> TABLE.—3 per cent. Interest.

Age.	Present value of an annuity of £1.	Single Premium for Assurance of £100 payable at death.	Annual Pre- mium payable through life for Assurance of £100 at death.	"Natural Premium" for Assurance of £100 for one year.	Age.
(1)	(2)	(3)	(4)	(5)	(6)
	£	£	£	£	
10	24.1481	26.7523	1.0638	47.57	10
11	23.9953	27.1981	1.0881	38.74	11
12	23.8142	27.7257	1.1173	32.22	12
13	23.6103	28.3195	1.1507	28.30	13
14	23.3897	28.9620	1.1875	2682	14
15	23.1581	29.6366	1.2268	2787	15
16	22.9215	30.3256	1.2677	3152	16
17	22.6861	31.0114	1.3093	3769	17
18	22.4577	31.6765	1.3504	4652	18
19	22.2129	32.3024	1.3898	5578	19
20	22.0425	32.8859	1.4272	6115	20
21	21.8184	33.4513	1.4641	6529	21
22	21.6562	34.0110	1.5012	6645	22
23	21.4546	34.5836	1.5398	6567	23
24	21.2539	35.1827	1.5810	6416	24
25	21.0379	35.8120	1.6250	6437	25
26	20.8136	36.4651	1.6717	6490	26
27	20.5823	37.1389	1.7208	6703	27
28	20.3472	37.8237	1.7718	6863	28
29	20.1090	38.5175	1.8247	7217	29
30	19.8674	39.2212	1.8795	7498	30
31	19.6227	39.9340	1.9364	7686	31
32	19.3726	40.6622	1.9959	7869	32
33	19.1169	41.4072	2.0583	8044	33
34	18.8549	42.1703	2.1239	8256	34
35	18.5871	42.9503	2.1928	8518	35
36	18.3141	43.7452	2.2649	8841	36
37	18.0370	44.5525	2.3403	9188	37
38	17.7556	45.3721	2.4191	9495	38
39	17.4689	46.2072	2.5019	9788	39
40	17.1762	47.0597	2.5891	1.0006	40
41	16.8757	47.9319	2.6816	1.0182	41
42	16.5662	48.8264	2.7801	1.0421	42
43	16.2483	49.7422	2.8851	1.0803	43
44	15.9211	50.7066	2.9961	1.1219	44
45	15.5835	51.6693	3.1138	1.1837	45
46	15.2596	52.6420	3.2376	1.2563	46
47	14.9234	53.6211	3.3674	1.3308	47
48	14.5847	54.6077	3.5039	1.4019	48
49	14.2423	55.6049	3.6481	1.4777	49
50	13.8963	56.6127	3.8005	1.5485	50
51	13.5452	57.6354	3.9625	1.6184	51
52	13.1881	58.6765	4.1356	1.6882	52
53	12.8254	59.7391	4.3190	1.7579	53
54	12.4615	60.7816	4.5100	1.8274	54

Hm TABLE.—3 per cent. Interest.

Age.	Present value of an annuity of £1.	Single Premium for Assurance of £100 payable at death.	Annual Pre- mium payable through life for Assurance of £100 at death	"Natural Premium" for Assurance of £100 for one year.	Age.
(1)	(2)	(3)	(4)	(5)	(6)
	£	£	£	£	
55	12 0938	61 8628	4 7216	2 0420	55
56	11 7242	62 9392	4 9464	2 1799	56
57	11 3533	64 0195	5 1824	2 3291	57
58	10 9813	65 1029	5 4337	2 4880	58
59	10 6083	66 1895	5 7019	2 6737	59
60	10 2359	67 2740	5 9874	2 8814	60
61	9 8655	68 3530	6 2908	3 1105	61
62	9 4978	69 4210	6 6132	3 3627	62
63	9 1337	70 4844	6 9555	3 6308	63
64	8 7741	71 5316	7 3185	3 9233	64
65	8 4179	72 5691	7 7051	4 2168	65
66	8 0641	73 5996	8 1199	4 5213	66
67	7 7118	74 6259	8 5661	4 8436	67
68	7 3602	75 6499	9 0488	5 1683	68
69	7 0073	76 6779	9 5761	5 5670	69
70	6 6565	77 6995	10 1182	6 0380	70
71	6 3109	78 7062	10 7656	6 6068	71
72	5 9748	79 6849	11 4216	7 2757	72
73	5 6526	80 6234	12 1190	8 0417	73
74	5 3182	81 5100	12 8328	8 8539	74
75	5 0614	82 3153	13 5851	9 5196	75
76	4 7820	83 1592	14 3821	10 3274	76
77	4 5118	83 9463	15 2304	11 1346	77
78	4 2491	84 7113	16 1382	11 9624	78
79	3 9916	85 4613	17 1209	12 9183	79
80	3 7424	86 1872	18 1737	14 0439	80
81	3 5068	86 8741	19 2773	15 3433	81
82	3 2897	87 5058	20 3992	16 6361	82
83	3 0890	88 0902	21 5491	18 0440	83
84	2 9080	88 6174	22 6758	19 3084	84
85	2 7388	89 1102	23 8337	20 3772	85
86	2 5704	89 6009	25 0967	21 3267	86
87	2 3927	90 1184	26 5625	22 4495	87
88	2 2057	90 6629	28 2815	23 2330	88
89	1 9966	91 3012	30 5703	24 5821	89
90	1 7399	92 0196	33 5846	27 1313	90
91	1 4872	92 7558	37 2935	30 3628	91
92	1 2288	93 5062	41 9537	34 1062	92
93	9612	94 3109	48 3362	40 3608	93
94	6779	95 1157	56 7187	49 2524	94
95	4153	95 8780	67 7477	61 8482	95
96	2528	96 5679	81 2543	79 2659	96
97	1153	97 0674	97 0674	97 0674	97

the assurance of £100 should death occur within the year ; this premium, as explained on page 3, ~~varies~~ each year, and constantly increases with age, until at last it becomes too large for it to be worth anybody's while to pay it

There is an interesting connection between the value of an annuity of £1 and the single and annual premiums for assurance, which it is well to notice. In order to illustrate this, we will take the case of a person aged 90. We see from the table (p. 18) that an annual premium of £33·5846 will, on the average, amount to £100 at death. We see also (p. 16) that a single premium of £92·0196 will amount to £100 at death, and therefore the single premium is the present value of the whole of the annual premiums ; but if the present value of £33·5846 a year for the rest of a life aged 90 is £92·0196, the present value of £1 per annum payable at the beginning of each year is £92·0196 divided by 33·5846, or £2·7399. The value of an annuity, as shown in the table, is £1·7399, or £1 less than the amount of the annual premium. This is accounted for by the fact that the annual premium is payable at the *commencement* of the year and the annuity is payable at the *end* of the year. Therefore, if we take the value of an annuity payable at the end of the year, and add to it the £1 which, if it were an annual *premium*, would have to be paid immediately, we obtain the £2·7399, which is the present value of £1 per annum for life payable at the *beginning* of the year ; the £1·7399 being the present value of £1 for life, the payment being due at the *end* of the year. This relation between the three amounts will be of convenience in illustrating the various points we shall come to presently, and we shall make frequent use of this table in subsequent pages.

In order to obtain exact results, it is necessary to carry the calculations to several places of decimals.

here given the figures are not stated to the full extent that was necessary for the calculation. If any readers wish to work out the calculations for themselves, it will be necessary to carry the figures to a larger number of decimal places.

The examples here given in detail start from age 90, in order to avoid the greater length of the tables that would be necessary to illustrate the premiums required at younger ages, but the same method can be applied to younger ages, and results obtained that would work out exactly at the death of the last person concerned

In illustrating the premiums for so advanced an age as 90, we scarcely give a just idea of the way in which Life Assurance works, for the reason that there is so short a time during which interest can accumulate, the result being that the premium has to be abnormally high. For younger ages the premium is a great deal lower, and interest plays a far larger part in providing for the claims when they become due. Thus, at age 20 a single premium of £33 suffices to assure £100 at death, the remaining £67 being provided by interest. The amounts contributed by cash actually paid as single or annual premiums and by interest are shown for various ages in the following table:—

These are average results, and show what happens when a large number of lives are concerned, it does not show each individual how his £100 is made up, but it does make clear how the Life Office provides for the payment of claims by compounding the premiums at interest.



Proportion of Sum Assured contributed on ~~the~~ average by  
Premiums actually paid and by Interest. ~~H~~ Mortality  
Table 3 per cent Interest Net Premiums.

ITEMS.	Age at entry.							
	20	30	40	50	60	70	80	90
Single Premium . .	33	39	47	57	67	78	86	92
Interest . . . . .	67	61	53	43	33	22	14	8
Sum Assured .	100	100	100	100	100	100	100	100
Total Annual Premium	61	66	72	79	86	91	95	96
Interest . . . . .	39	34	28	21	14	9	5	4
Sum Assured . . . .	100	100	100	100	100	100	100	100

Moreover, we are still dealing with net premiums, not with the gross premiums, which include the loading for expenses.

In each of the two tables illustrating the sufficiency of single and annual premiums to provide £100 at death there is a column showing the reserve that is held on account of each policy, which it will be noticed increases steadily from year to year. This is an important matter in Life Assurance, and one on which the stability and certainty of assurance depends. As we have seen before, it would be possible to effect insurance at lower rates increasing from year to year, were this found to be a convenient plan; but it is usually much more satisfactory to pay a uniform or level premium throughout life, and in that case it is necessary for the premium, to commence with, to be higher than the natural premium for the current year, in order that in later years the level premium may be lower than the natural premium. The result of this is that part of every premium paid at the earlier ages is reserved in order

to provide for the deficiency that would otherwise be at the older ages. The amount so saved is called a "Reserve," and from time to time a Life Assurance Company makes a valuation, in which it calculates what the reserve ought to be for each of the policies that is in force at the date of the valuation. The same thing is shown in the table illustrating the working of the Annuity Fund. The whole question of Reserves will be dealt with more fully in another chapter.

So far we have assumed the claims to be paid only at the deaths of the persons assured, but policies nowadays are being taken in increasingly large numbers which provide for the payment of the sum assured on attaining a specified age, or at death, should it occur previously. These are called Endowment Assurance policies, and the appropriate premiums for such policies may be found in the same way as we found the premiums on whole-life policies.

Instead of continuing the calculation to the last age contained in the Mortality Table, we have to reckon that a claim arises in the case of every individual who is alive at the age specified for the payment of the sum assured. Thus, to take an illustration from the table already given (p. 16), we will suppose that it is arranged to pay £100 on reaching the age of 94, or at death, should it occur previously. Obviously, the claims we shall have to pay are according to the Mortality Table :—

408	on account of those who die before reaching the age of 91	
329	" " " " "	92
254	" " " " "	93
195	" " " " "	94
274	to those who attain the age of ... ..	94

2  
1,460 claims in all.

The present value of the claims arising out of the deaths in the four years will be exactly the same as in the previous

table; these amount to £111,193·171, as we can see by adding up the present value of the claims for the four years. In addition to this, 274 payments of £100 apiece will have to be paid at the commencement of the year to the assured persons who are still alive; and, multiplying by 274 the present value of the £100 to be paid at the commencement of the fifth year, *i.e.* £88·8487, we obtain £24,344·54; which, added to the £111,193·171 required for claims arising out of deaths, we obtain £135,537·715 as the present value of the 1,460 claims of £100 each, arising under the 1,460 endowment assurance policies issued at the age of 90.

The present value of the amount required to meet the claims under these 1,460 policies being £135,537·715, it follows that the single premium to be paid at age 90 by each of the 1,460 persons effecting the assurance is the 1,460th part of this amount, or £92·83405.

The present value of the annual premiums of £1 each paid by those living during the first four years is obtained by adding up the first four items in column 4 of the table on page 18, and this amounts to £3,592·05796. The amount we want, however, is £135,537·715; and, dividing this figure by 3,592·05796, we obtain £37·7326 as the annual premium required to be paid for an endowment assurance for £100, assuming the age at entry to be 90, that the sum assured has to be paid on attaining age 94, or at death if it occurs between these two ages, and assuming also that interest is earned at the rate of 3 per cent. per annum, and that the deaths occur as stated in the Mortality Table.

In kindred ways to these the premiums for policies of other kinds may be readily ascertained. We may want to know how much we ought to pay for a term policy which provides for the sum assured to be paid if death occurs within the term of 3, 5, 7, or any other number of years, and not otherwise; or we may want to know the

premium we ought to pay for some kind of policy, supposing we wished to arrange to complete the entire payment of premiums in 5, 10, 15, or some other number of annual payments. In such cases the premium may be ascertained on the same principle as in the illustration we have just given.

It must, of course, be borne in mind that the premiums ascertained in this way are the net or pure premiums, to which no addition has been made as provision for expenses of management or for future profits. This subject of addition for expenses we will consider in another chapter.

## POLICY VALUES.

Before we go any further we must give a more detailed consideration to the last column in the tables, on pages 19, 20, and 23, showing the way in which the value of an annuity and the single and annual premiums suffice to meet their respective claims. That column shows the amount of the reserve that a company must have in hand in order to meet the claims as they mature.

If we take the case of a single premium first, it is clear that the reserve that a company must have in hand is the amount of the single premium for the attained age of the assured, because this is the cost of the assurance, and the office has nothing more to receive from the assured. Thus the single premium for the assurance for £100 of a person aged 95 being £95·8780 (see p 25), the reserve that an office must have in hand, when a number of policies, at whatever age they were commenced, have attained the age of 95, must be £95·8780, the difference between the original amount that was paid and the amount required as reserve being provided by the interest that has accumulated.

The present value of the liability under a policy on a life age 95 is, as we have just seen, £95·878; but in the case of a policy effected by annual premiums the Life Office need not have this amount in hand because the policy-holder will have to make annual payments during life; therefore, if we deduct the present value of what the office will receive from the present value of what it will have to pay we obtain the present value of its liability, which is the reserve the office

must have in hand, or, as it is often called, the policy value. Thus, in the case of a policy effected on a life at age 90 that has now attained to age 95, the reserve is £95·878, less the present value of the future premiums that will have to be paid.

In the table showing the value of an annuity we have the present value of £1 per annum on a life age 95 stated at £·4152, but the first payment in the case of an annuity is to be paid at the end of the year, while in the case we are considering the next premium is supposed to be due now; the value of £1 per annum, the first payment being now due, is then obviously £1 more than the £·4152 stated in the table, and is £1·4152. The annual premium at age 90, which is what the office will receive, is not £1, but £33·5846, and the present value of this amount is £1·4152 multiplied by 33·5846, or £47·530.

We thus get these results:—

The present value of what the office will pay is	...	£95 878
" " " " receive is	..	£47 530
" " the liability under the policy is...		<u>£48 348</u>

which is the amount shown in the table on page 20 as the reserve at age 95 on a policy effected at age 90.

This is based on the assumption that the mortality will be according to the H<sup>m</sup> Table; that interest will be earned at 3 per cent.; that the annual premium is just due, but has not been paid; and that we are considering the net premium, and leaving the matter of expenses out of the question. The following table shows the reserve required on this basis for different ages at entry and various durations of policies.

Reserve or Policy Values on Whole-Life Policies for £100 effected by net Annual Premiums at age stated, after being in force for the number of years shown in Col. 1. H <sup>m</sup> Mortality Table 3 per cent						
Number of Years in force	Age when Policy was commenced.					
	20	30	40	50	60	70
5	£ 4 360	£ 6 135	£ 8 708	£ 12 100	£ 16 180	£ 20 833
10	9 440	12 897	18 045	24 573	31 857	38 060
15	14 996	20 481	27 962	36 777	46 053	51 168
20	21 119	28 614	38 183	48 601	57 792	64 215
25	27 987	37 252	48 186	59 309	66 725	81 516
30	35 353	46 156	57 876	68 164	75 615	.....
35	43 175	54 868	66 652	74 901	87 405	.....
40	51 238	63 309	73 909	81 607	.....	.....
45	59 128	70 953	79 430	90 500	.....	.....
50	66 772	77 274	84 926	.....	.....	.....
55	73 695	82 083	92 214	.....	.....	.....
60	79 419	86 870	.....	.....	.....	.....

This question of liability under existing policies is what a Life Assurance Company has to determine periodically at its valuation; particulars in regard to which, compiled in a certain prescribed way, have to be deposited with the Board of Trade in accordance with Act of Parliament. The cases we have been considering are extremely simple, but the actual carrying out of the valuation is an intricate matter, owing to the great variety among the classes of policies, the ages at entry, and the periods they have been in force.

The general basis, however, on which this valuation is made does not require any actuarial knowledge to form an opinion about. A Mortality Table has to be adopted which allows for a mortality at least as great as is likely to occur, while the rate of interest assumed ought to be less than may confidently be expected to be realised. The liability for future expenses is usually provided for by assuming that the

amount which a company will receive from the policy-holders is only the net premiums for the age at which the policy-holders entered, and not the gross premiums which is what they will actually pay, the "loading" or difference between the net premiums and the gross premiums being entirely reserved as a provision for future expenses.

A valuation, then, consists briefly in determining the present value of the claims which under existing policies the company will have to meet, and deducting from this the present value of the payments which under existing policies the company is going to receive, the difference between the two constituting the present value of the company's liability and being the reserve which it must have in hand in order to meet the future claims as they become due.

We shall see that a Life Office in a flourishing condition invariably has a larger amount in hand than is required to meet its liability, and this excess of assets over liability is called surplus, which is available for distribution to policy-holders entitled to participate; but before considering the question of surplus, we must devote a little attention to the subject of expenses.



## LOADING

In considering the way in which premiums are calculated, we have so far excluded the question of expenses. This has been done for the sake of simplicity, but they must, of course, be taken into account in settling how much an Insurance Company is to charge a policy holder for his assurance. It is necessary to add something to the net premium, which is what we have hitherto been discussing, in order to arrive at the office premium, which is what a policy holder has to pay. The amount added to the net premium, in order to obtain the office premium, is called the "loading."

In the case of policies which do not participate in profits, the loading only has to be sufficient to cover the expenses and such margin as may be considered necessary for contingencies, such as the death rate being in excess of that provided for by the Mortality Table, or the rate of interest earned on the funds of the company being less than the rate of interest assumed in calculating the premium rates. This addition of "loading" is determined by the different offices in an arbitrary manner, depending upon the opinion of the actuary, who is responsible. For most kinds of policies it is a fixed percentage of the premiums, but in certain cases it is better to make the loading a percentage of the sum assured rather than of the premiums.

The Mortality Table that we have considered in previous chapters is that issued by the Institute of Actuaries, and the rate of interest we have assumed is 3 per cent., but

the rates of many companies are based upon the Carlisle or other Mortality Tables, and have not been revised upon the basis of those of the Institute, while some other rate of interest than 3 per cent. may have been adopted; hence the comparison of the office premiums with the net premiums described in previous chapters will not, in most cases, show either a uniform amount or a uniform percentage of loading; but in order to obtain some idea of the proportion added for expenses the following table is given, showing the average rate charged by the whole of the ordinary Life Companies doing business in this country for whole-life policies of £100 without participation in profits, below which are the net premiums without any addition for expenses, calculated by the H<sup>m</sup> Mortality Table with interest at 3 per cent.; the difference given on the third line shows the amount of the loading, and on the bottom line the percentage of the office or gross premiums that this loading forms.

Table showing the amount of Loading and the proportion of Loading per cent. of Office Premiums by comparison of the average Premium charged by the Life Offices for Non-Participating Whole-Life Policies of £100, with the net Premium by H<sup>m</sup> Table at 3 per cent

ITEMS	Age at entry				
	20	30	40	50	60
	£	£	£	£	£
Average Office Premium	1 854	2 104	2 817	4 046	6 362
Net Premium H <sup>m</sup> 3 %	1 625	1 879	2 589	3 800	5 987
Difference — Amount	0 229	0 225	0 228	0 246	0 375
Difference — percentage of Office Premium }	12 35	10 69	8 09	6 08	5 89

In the case of policies that participate in profits, the loading is increased in order to provide, not merely for the

expenses incurred, but for the bonuses or profits that will be added to the policies in the future. This is shown in the next table, which sets forth the average office premiums charged by all ordinary Insurance Companies doing business in this country for whole-life policies of £100 with participation in profits.

Table showing the amount of Loading and the proportion of Loading per cent. of Office Premiums by comparison of the average Premium charged by the Life Offices for Participating Whole-Life Policies of £100, with the net Premium by H <sup>m</sup> Table at 3 per cent					
ITEMS.	Age at entry.				
	25	30	40	50	60
	£	£	£	£	£
Average Office Premium	2 162	2 446	3 237	4 558	7 046
Net Premium H <sup>m</sup> 3 %.	1 625	1 879	2 589	3 800	5 987
Difference — Amount .	0 537	0 567	0 648	0 758	1 059
Difference—percentage } of Office Premium . }	24 85	23 18	20 02	16 63	15 03

If now we compare the loading of non-participating policies with the loading upon participating policies, we find that the difference between the two amounts is as follows :—

Age at Entry	25	30	40	50	60
Amount of loading on participating policies.	0 537	0 567	0 648	0 758	1 059
Amount of loading on non-participating policies.	0 229	0 225	0 228	0 246	0 375
Loading for future profits. Amount	0 308	0 342	0 420	0 512	0 684
Ditto percentage of participating premiums.	14 25	13 98	12 97	11 23	9 71

It is worthy of special notice that this extra loading, or, in other words, the additional cost of participating policies, as compared with non-participating policies, amounts in practically all cases to a smaller amount than is subsequently returned to the participating policy-holders in the form of bonuses. The reason of this is that it is necessary for the security of a company, undertaking contracts that may possibly run for a period of fifty years or more, to provide against adverse fluctuations both in regard to mortality, in regard to interest, and in regard to expenses. In the case of participating policy-holders the provision so made for the sake of safety is returned to them, should it prove that either the expenses or mortality have been less than so provided for, or the interest greater than was contemplated, while in the case of non-participating policies no such return is made, should the conditions prove more favourable than were provided for.

## SOURCES OF SURPLUS.

The difference between the actual cost of Life Assurance and the premiums paid, which produces the surplus out of which bonuses are distributed to the policy-holders, is derived from various sources.

(1) The number of deaths occurring within a certain period may be less than the number stated in the Mortality Table, which would mean that the company in a given time would have to pay a smaller number of death claims and, under most policies, receive a larger number of premiums than was calculated upon. The gain from this source forms the surplus derived from a favourable mortality.

(2) The calculations may have estimated that the expenses would cost, say 20 per cent. of the premiums received, while the actual expenses may only have been 10 per cent. or 15 per cent. of the premiums received, and the difference between these two forms the surplus derived from the loading for expenses.

(3) The Life Office, in making its calculations, may have assumed that its funds were going to earn, say, 3 per cent., whereas in actual experience they may have earned as much, perhaps, as 4 per cent., the difference between the two being the surplus derived from interest.

(4) Some of the policies, which it was supposed in the calculations would remain in force until death, or until the time fixed for the maturity of the policy, may have been discontinued and surrendered to the company for a smaller

amount than the reserve which the company had accumulated, and the difference between the reserve and the surrender value constitutes the surplus derived from surrenders; although, as we shall see presently, surrenders are in some ways disadvantageous to the company.

(5) Sometimes a policy which has been taken out is not able to be kept up long enough to give it any surrender value, and it consequently lapses without any payment being made by the company to the policy-holder. In this case, the difference between the premiums paid by the policy holder and the cost to the company of the risk while the policy was on its books, and of the expenses appropriate to the policy, forms the surplus derived from lapses.

(6) In addition to these sources of surplus an office may earn a profit on investments, especially from such classes of securities as Life Reversions, and may make minor amounts from other miscellaneous sources.

We will now consider the chief sources of surplus in greater detail.

## SURPLUS DERIVED FROM FAVOURABLE MORTALITY.

In order to see the amount of surplus derived from a favourable mortality we will take a perfectly simple case, uncomplicated by questions of expenses, surrenders, lapses, or variation in the rate of interest earned. We will suppose that an office has in force on 1st January 82,284 policies for £100 each which commenced 10 years previously; that the policy holders were age 30 at entry, and age 40 when the period we are observing commenced; that they pay the net premium of £1·8795 per annum required by the H<sup>m</sup> Mortality Table at 3 per cent. for age 30. We will assume further that the interest earned on the funds is exactly 3 per cent., and that the claims are all paid on the 31st December in each year.

The company, at the time when our observation begins, has in hand the precise amount of reserve required by the H<sup>m</sup> Mortality Table at 3 per cent., namely, £12·8978 for each policy. This sum, multiplied by 82,284, the number of policies in force, gives £1,061,283 as the funds at the beginning of the period, to which we must add 82,284 premiums of £1·8795 each, i.e. £154,653; combining these two amounts and adding to them interest at 3 per cent., we obtain the sum of £1,252,414, from which, if the deaths occur according to the Mortality Table, we have to deduct claims amounting to £84,800, leaving £1,167,614 at the end of the year. This amounts to a reserve of £14·3378 for each of the 81,436 policies remaining in force, and is exactly the reserve required by the H<sup>m</sup> Mortality Table at 3 per

# SURPLUS FROM FAVOURABLE MORTALITY. 43

Table illustrating the working of an Insurance Fund, and showing the Surplus derived from Favourable Mortality.

Conditions	Items.	First Year.	Second Year.	Third Year.	Fourth Year.	Fifth Year.
TABLE A Mortality H <sup>m</sup> Premiums not. Expenses nil. Interest 3 per cent.	Number of Policies in force January 1 . .	82,284	81,436	80,582	79,717	78,830
	Funds January 1 . .	1,061,283	1,167,614	1,271,893	1,382,637	1,480,739
	Premiums received, £1879 each. Jan. 1 . .	154,653	153,079	151,151	149,828	148,161
	Funds plus Premiums Interest at 3 per cent . .	1,215,936	1,320,673	1,426,347	1,532,465	1,637,900
	Funds, Premiums, and Interest . .	1,252,414	1,360,293	1,469,137	1,578,139	1,687,037
	Claims, £100 each. December 31 . .	81,800	85,400	86,500	88,700	91,100
	Funds December 31 . .	1,167,614	1,274,893	1,382,637	1,489,739	1,595,937
	Number of Policies in force December 31 . .	81,436	80,582	79,717	78,830	77,919
	Reserve H <sup>m</sup> 3% on each Policy December 31 . .	11,3378	15,8211	17,3443	18,8981	20,4820
	Reserve H <sup>m</sup> 3% on total of Policies. Dec 31 . .	1,167,614	1,274,893	1,382,637	1,489,739	1,595,937
	Surplus (Funds - Reserve) December 31 . .	nil	nil	nil	nil	nil
TABLE B Mortality 80% of H <sup>m</sup> Premiums net. Expenses nil. Interest 3 per cent	Number of Policies in force. January 1 . .	82,284	81,606	80,921	80,226	79,512
	Funds. January 1 . .	1,061,283	1,184,614	1,309,632	1,436,075	1,563,066
	Premiums received, £18795 each. Jan 1 . .	154,653	153,378	152,091	150,785	149,443
	Funds plus Premiums Interest at 3 per cent . .	1,215,936	1,337,992	1,461,723	1,586,860	1,712,509
	Funds, Premiums, and Interest . .	1,252,414	1,378,132	1,505,575	1,634,466	1,763,884
	Claims, £100 each. December 31 . .	67,800	68,500	69,500	71,400	73,500
	Funds. December 31 . .	1,184,614	1,309,632	1,436,075	1,563,066	1,690,384
	Number of Policies in force. December 31 . .	81,606	80,921	80,226	79,512	78,777
	Reserve H <sup>m</sup> 3% on each Policy. December 31 . .	14,3378	15,8211	17,3443	18,8981	20,4820
	Reserve H <sup>m</sup> 3% on total of Policies. Dec. 31 . .	1,170,051	1,280,259	1,391,464	1,502,626	1,613,511
	Surplus (Funds - Reserve) December 31 . .	14,563	29,373	44,611	60,440	76,873
		Under A.	Under B.	Difference.		
Total Premiums received . .		757,155	760,350	3,195	Gain under B.	
Total Interest received . .		213,999	219,451	5,452	" " "	
Total Claims paid . .		438,500	350,700	87,800	" " "	
Total Gain . .				94,447		
Liability at end of period . .		1,595,937	1,613,511	17,574	Increased Liability	
Surplus from favourable mortality . .				275,873	under B.	



cent. There is, therefore, no surplus, as of course both the mortality and interest have been precisely what was calculated upon.

The operation of the fund on this basis is shown in the preceding table for five years, the conditions we have just considered being marked "A." In the lower part of the table is another set of conditions marked "B," the only difference between the two sets of conditions being that in the one case the mortality occurs according to the H<sup>m</sup> Table, and in the other case the mortality is only about 80 per cent. of the tabular rate.

Table "B" commences with the same number of policies in force, the same amount of funds, receives in the first year the same amount of premiums, earns the same rate of interest, and has the same amount of funds in hand, namely, £1,252,414, out of which to pay the claims; but, as only 678 deaths occur instead of 848, the funds are reduced by a smaller amount, and are, consequently, larger at the end of the year; but as the claims were fewer during the year, a greater number of policies remain in force, and, providing the same reserve for each policy as we provided in the former case, it is necessary to have a larger total reserve in hand to meet future liabilities. This total reserve must be £14,3378, multiplied by 81,606, which amounts to £1,170,051. If we deduct this amount from the funds in hand at the end of the year, we leave a surplus of £14,563, which is the amount of surplus arising during one year from a more favourable mortality than was calculated upon.

Table "B" shows the operation of the funds on this basis for five years, and we see from the last column that the surplus gradually increases from year to year, being £14,563 the first year, and £76,873 at the end of the five years. This latter amount includes each of the former, and

is the surplus earned during the whole of the five years—not the surplus earned in the fifth year alone

If we add up the lines in each of the tables “A” and “B” we can conveniently check the results and see that they are correct, and we can, by comparing the totals of the columns of “B” with the corresponding totals of “A,” see exactly how the surplus arose. Owing to the greater number of policies in force under conditions “B” than under conditions “A,” the former shows a gain from premiums of £3,195, owing to the fund being larger in “B” than in “A” there is a gain from interest of £5,152, and owing to the amount of claims being less in “B” than in “A” there is a further gain of £85,800, the three items together making a total gain of £94,147. But, as there are a larger number of policies remaining in force under “B” than under “A,” and, as the reserve on each policy has to be the same in both cases, there is a greater liability under “B” than under “A,” the increase in the liability being £17,571, if we deduct this from the total gain of £94,147 we obtain the surplus of £76,873. This amount is available for distribution among the 78,777 policies which remain in force, averaging 19s. 6d. for each policy holder.

It will be observed that a favourable mortality means that the policy holders live longer than according to the Mortality Table it was expected they would live. Their deaths are bound to come some day, but the longer duration of their lives implies the receipt by the Assurance Company of a larger number of premiums, and involves a longer time during which interest can accumulate on the funds, which are larger in amount owing to the claims not having to be paid so soon as the Mortality Table contemplates. It will be noticed also that, although in the above table interest has of necessity been reckoned, it has been calculated in both “A” and “B” at the assumed rate of 3 per cent., and

none of the surplus that was earned was due to the rate of interest being in excess of the rate assumed.

By the help of these tables several matters of great importance in Life Assurance become clear. In the first place we see the necessity for making a careful medical examination before accepting a policy-holder, because if unhealthy lives are admitted at ordinary rates, the mortality is likely to be above rather than below that stated in the Mortality Table, and it will readily be seen that, instead of being a source of surplus, the mortality may become a cause of loss.

Another point on which some emphasis should be laid is that lives which have recently passed a strict medical examination show a mortality considerably less than the average for the same age, and that, therefore, a large influx of new business tends to produce a favourable rate of mortality.

Unfortunately, it is not at all easy to obtain any satisfactory figures about the actual mortality experienced by different companies, and almost, if not quite, all the comparisons that are sometimes published, based upon the proportion of the amounts of death claims to premium income and other kindred comparisons, are entirely devoid of value, because so many other circumstances enter in and tend to disguise the real effect of the mortality. People well acquainted with insurance matters know pretty well what sort of mortality different offices are experiencing, and what kind of care they take in the selection of new lives; but it is a point upon which the general public is scarcely able to form an opinion, although the matter is one of great importance.

## SURPLUS DERIVED FROM LOADING.

In the last section we had an illustration of the effect upon the surplus of a more favourable mortality than was assumed in the Mortality Table. In that illustration we paid no attention to the question of expenses, and calculated the interest throughout at the rate assumed.

We will now take the matter of surplus a step farther, and, letting the mortality be the same as in Table "B," which is what we supposed to have been actually experienced, and still retaining the rate of interest at 3 per cent., we will see what amount of surplus arises out of the loading. The loading, it will be remembered, is the amount added to the net premiums as deduced from the Mortality Table, in order to provide for the expense of managing the business, for future profits or surplus, and for any contingencies that may arise.

The average rate charged by the companies doing business in Great Britain for a whole-life participating policy of £100, age 30 at entry, is about £2 9s. 0d., or £2·45 per annum. Therefore in the next Table "C" the amount of premiums received is £2·45 multiplied by the number of policies in force at the beginning of each year. Thus, the total premiums amount to £991,145 instead of £760,350, which is what the net premiums in Table "B" amounted to. The difference between these two amounts is the loading, the amount of which we supposed to have been absorbed by expenses.

For convenience in making out the table, we will assume

Table showing Surplus Derived from Various Sources, in five years.

Reference Letter.		A	B	C	D	E
Conditions.	Mortality	H <sub>m</sub>	80 % H <sub>m</sub>	80 % H <sub>m</sub>	80 % H <sub>m</sub>	80 % H <sub>m</sub>
	Premiums, amount of each	£18795	£18795	£245	£245	£245
	Expenses	omitted	omitted	Whole loading	8 % of Premium	8 % of Premium
	Rate of Interest earned	3	3 %	3 %	3 %	1 %
Results.		£	£	£	£	£
	Funds at beginning of period	1,061,283	1,061,283	1,061,283	1,061,283	1,061,283
	Total Premiums received	757,155	760,350	991,145	991,145	991,145
	Interest	213,989	219,451	226,374	236,254	320,897
	Total Income.	2,032,437	2,041,084	2,278,802	2,288,682	2,373,325
	Claims	436,500	350,700	350,700	350,700	350,700
	Expenses.		nil	237,718	79,291	79,291
	Total Outgo	436,500	350,700	588,418	429,991	429,991
	Funds at end of Period (Income—Outgo).	1,595,937	1,690,384	1,690,384	1,858,691	1,943,334
	Reserve H <sub>m</sub> . 3 % net Premiums	1,595,937	1,613,511	1,613,511	1,613,511	1,613,511
	Surplus	nil	76,873	76,873	245,180	329,823
	Surplus derived from Mortality		£76,873	0	£76,873	
	" " " Loading		£245,180	£76,873	£168,307	
	" " " Interest		£329,823	£245,180	£281,643	
	Total Surplus				£329,823	

that the expenses are all payable at the end of the year, and that they absorb the entire loading, together with interest upon it, at the rate of 3 per cent. for the year. The only difference between Table "C" and Table "B" is that in "C" the income is increased by the premiums being gross instead of net, and the outgo is increased to a corresponding amount by the expenses being added to the claims and deducted from the funds; the result is that the funds at the end of the period, and consequently the surplus, are precisely the same in Table "C" as in Table "B."

The Tables "C" to "E" have been worked out in the same way as shown in "A" and "B" (p. 43), but it is only

necessary to show the results as a whole without exhibiting the details.

If now we turn to Table "D," we see that the premiums are the same as in Table "C," but that the expenses, instead of being the whole of the loading, are a much smaller amount. We have supposed that 8 per cent. is absorbed in commission and expenses, and when this is added to the claims and deducted from the funds, we see that the funds at the end of the period are considerably more than under the conditions assumed in Table "C"; the reserve required in both cases is the same, and the consequence is that the surplus is considerably more. If we look at the total results for the five years, we find that the saving in expenses or

The gain from loading is "C" £237,718 less "D" £79,291 =	£158,427
The gain from interest is "D" £236,254 „ "C" £226,371 =	£9,880
And the total gain is ... ..	<u>£168,307</u>

The total surplus under Table "D" is £245,180, of which, as we saw, £76,873, the amount shown in Tables "B" and "C," was derived from a favourable mortality; the remaining £168,307 was derived from the expenses being less than were estimated. In both the cases we have considered so far, there appears to be a gain from interest, but it must be remembered that this is not a gain from the rate of interest being in excess of the rate that was anticipated, but is simply derived from the larger amount of funds.

The question of the amount of loading added to the net premiums in order to produce the gross premiums is another matter of great importance in Life Assurance. Obviously, if other things are equal, an office that adds a comparatively small amount for loading cannot earn so large a surplus as

an office that adds a large amount ; hence it is clear that in comparing the bonuses that different offices allot to their policy-holders, it is necessary to take into consideration the amount of premium that is charged. An office charging a high premium should be able to give a large bonus, while an office charging a low premium would, of course, have a smaller amount available for distribution of bonuses.

It is important also to consider the proportion of the premiums received that is actually absorbed in commission and expenses. This is an intricate matter to judge fairly about, and one upon which undue stress is sometimes laid. It is not enough to simply consider what percentage of the total premiums received is absorbed in expenses, because the expenditure upon new business is a great deal more than the expenditure upon old or renewal business, and unless we take into account the amount of new business that an office is obtaining, we cannot adequately judge of the amount that may wisely be devoted to commission and expenses.

It was for this reason that in the illustration in Table "D" the expenses were put at 8 per cent., which is lower than most companies are working at. If no distinction is made between the cost of new and renewal business, 8 per cent. is a very low allowance to make, but as the illustration in the table was concerned entirely with renewal business, and new business did not enter into consideration at all, the rate of 8 per cent. is a fair average allowance for expenses, being indeed rather high than otherwise. We shall have occasion to refer more fully to the question of expenses later on (pp. 141-144).

## SURPLUS DERIVED FROM EARNING A HIGHER RATE OF INTEREST THAN WAS ASSUMED.

We must now carry our consideration of the sources of surplus one step farther still. In Table "A," on page 48, we showed the working of the fund on the assumption that the mortality and interest were precisely as calculated upon, and found there was no surplus. In Table "B" we assumed that the interest was exactly what was estimated, but that the mortality was more favourable than the table, and, consequently, there was a surplus due to a favourable mortality. In Table "C" we still supposed the interest to be at the original rate, but took the more favourable mortality actually experienced; we then worked on the gross premiums and supposed the expenses to exactly absorb the loading as in the original calculation. Thus Table "C" brought out the same surplus as Table "B," the whole of it being due to the more favourable mortality. In Table "D," retaining the rate of interest originally assumed and the mortality actually experienced, we put the expenses at 8 per cent. of the premium income and found a surplus in excess of that due to favourable mortality, the whole of the excess being due to the actual expenses being less than the expenses that were calculated upon, and forming the surplus arising from loading.

We now have to assume, not only that the mortality and expenses, but that the rate of interest also, is different from that originally assumed. We will take the rate of



interest at 4 per cent. instead of 3 per cent. The results of this are shown in Table "E." The policies in force, the amount of premiums received, the claims and expenses, and the reserve required at the end of each year, are precisely the same as in Table "D," the only difference being in the rate of interest earned. This, as may be seen from the table itself, is (£320,897 - £236,254 =) £84,643 more than when the interest earned was 3 per cent. We thus have a surplus shown in Table "E" at the end of the fifth year, of £329,823, which was made up as follows:—

Surplus from Mortality, B—A	...	...	...	...	£76,873
Surplus from Loading, D—B or C	...	...	...	...	168,307
Surplus from Interest, E—D	...	...	...	...	84,643
Total	...	...	...	...	<u>£329,823</u>

These are the most important sources of surplus, and as a reserve has been made according to the H<sup>m</sup> Table at 3 per cent. interest, on the assumption that the whole of the loading will be absorbed in commission and expenses, the office has provided adequately for meeting its future liabilities, and, therefore, the whole of this surplus would be available for distribution among the 78,777 (*see* Table "B," p. 43) policies that remain in force.

If the whole of it were divided equally it would give a cash bonus of £4 3s. 9d. for the five years, of which

The amount due to Mortality is	...	...	...	£0	19	6
The amount due to Loading is	...	...	...	2	2	9
The amount due to Interest is	...	...	...	1	1	6
Total	...	...	...	<u>£4</u>	<u>3</u>	<u>9</u>

or an average of about 16s. 9d. per annum returned out of an annual premium of £2 9s. 0d. This is a fair sample of what a successful Insurance Company can accomplish.

Some companies charging about the premium we have assumed give a cash bonus considerably more than this, while others give a bonus that does not amount to so much. The case we have taken is, of course, simple in the extreme and free from complications which arise through the policies having been effected at different ages at entry, and having been in force for varying lengths of time. The policies have all been of the same amount and for the whole of life, while new business, surrenders, and lapses have been left entirely out of account. It will not, of course, be supposed that any Insurance Company actually experiences such simple conditions, but the illustrations suffice to show clearly the principle on which a surplus accumulates.

## SURPLUS FROM SURRENDERS.

Besides the principal sources of surplus which we have just been discussing, a certain amount of profit is obtained from policies that are surrendered. If a policy-holder is unable or unwilling to continue the payment of the premium that is required to keep his policy in force, most insurance companies are prepared, if the policy has been in force for two or three years, to pay to the assured some part of the reserve which has accumulated on the policy. There is no uniformity of treatment adopted in this respect by the different companies. Some offices, in order to reduce the matter to a definite statement readily intelligible to the policy-holders, undertake to return a definite percentage of the premiums; other offices base the amount of the surrender value on the reserve or policy value which was described in a previous section; while yet other offices settle each application for surrender value on its merits, apparently with a pleasing disregard of rule (pp. 160-162).

We saw that the surplus shown in Table "E" (p. 52) amounted in five years to £4 3s. 9d. for each £100 policy, and assuming that 1 per cent. of the total policies in force are surrendered every year, and that the office allows a surrender value equal to half the premiums paid, which is a fairly liberal allowance, we find that there would be a profit from surrenders of about 3s. 9d., for each of the surviving policies at the end of the five years. This is equal to 9d. per annum from surrenders, in addition to the 16s. 9d. per annum arising from the more important sources of surplus, but although there is thus a direct gain to a small extent, there

is an indirect loss which partially, if not wholly, counteracts the gain.

In the first place it is normally disadvantageous to a company for the total sum assured to decrease, and if surrenders or lapses occur, it is necessary for an office to make up for the diminution so caused by obtaining an equal or larger amount of new business, and owing to the extra commission and other expenses connected with new business, a greater expense is involved than in the continuance of old policies. Moreover, the cessation of any particular policy does not practically reduce the expenses of an office, although it may have a slight effect upon the commission, but leaves the same amount to be spread over a smaller number of policies, and therefore increases the average rate.

In the case of policies that do not participate in profits, it is reasonable to expect that they would be a source of profit for the participating policy-holders, or for the shareholders, or for both, and unless in settling the amount of the surrender value some compensation is provided on this account, the surrender would involve a certain amount of loss as compared with expectations.

It is for reasons such as these that the surrender value has to be less than the reserve that an office has in hand to provide for the liability on the policies surrendered, but even after making such allowances, it is questionable whether the indirect loss does not nearly or quite balance the direct gain. It is certain that the best offices much prefer that policies should remain on their books rather than be surrendered.

Moreover, it is urged, with a large amount of reason, that a policy contract is made for life or for a fixed term, so that the surrender of the policy is in some sense a breach of the contract, for which a penalty may rightly be

claimed, and it is said that it is the business of Life Offices to sell Life Assurance, not to buy it.

On the other hand, the office accumulates a reserve for each policy-holder, to at least the greater part of which he is morally entitled if he wishes to discontinue his policy, and competition, in fixing this amount, has produced surrender values considerably more liberal than formerly. In spite of this it frequently happens that a policy may be sold in the open market for a larger amount than the surrender value that the office would allow upon it. This method of selling the policy to a third party who will keep it in force, is naturally more satisfactory to the policy-holder if its market value exceeds the surrender value offered by the company, and is in most cases more satisfactory to the insurance company than if the policy were abandoned altogether. A recent statement as to the prices realised by auction, as compared with the surrender values offered by the insurance companies, showed that the prices ranged from 105 to 186 per cent. of the surrender values; the average was 127 per cent. or £127 (less expenses) by auction for each £100 offered in surrender by the offices.

On the whole, therefore, surrenders are not a satisfactory source from which to derive surplus. Doubtless, in some exceptional cases, where a life office is in a weak condition, the assured, finding their policies unsaleable and the continuance of the policy undesirable, may take a small surrender value that may yield a large profit to the office, but, happily, these circumstances are very rare.

A further small contribution to surplus is made by policies that lapse shortly after being taken out, and on which no surrender value is paid. This may most fitly be considered in connection with the effect of new business generally.

## NEW BUSINESS.

We have already said that the expenses connected with new business are proportionately greater than the expenses connected with the maintenance of old business. In the first place, the commission paid for the introduction of the business is almost invariably a great deal more, besides which there are the fees for medical examination, stamps, and other direct charges. In addition to this, the cost of advertising and the maintenance of branch offices are almost entirely attributable to the necessity for obtaining new business, so that on the whole it does not seem an extravagant supposition to suppose that the cost of new business is proportionately ten times as great as the cost of renewal business. This means that if 8 per cent. of the renewal premiums is absorbed in providing for the cost of renewal business, 80 per cent. of the first year's premiums is absorbed in providing for the cost of new business.

It must, however, be borne in mind that the expenditure varies very widely in different offices. Some companies would consider the percentages we have named as a great deal too extravagant, and sooner than incur such expenditure, would, if necessary, abstain from the extension of their business; some companies, on the other hand, consider it prudent to pay a great deal more even than 80 per cent. of the first year's premiums, in order to obtain a large amount of new business, for they hold that the advantages of new business more than compensate the disadvantages of the heavy expenditure; in yet other

cases the expenditure is considered too great, but it is found impracticable to get an adequate supply of new business at a smaller cost, and therefore what is considered the less of two evils is chosen, and new policy holders are secured at a heavy cost.

If we consider the matter on the basis of spending 80 per cent. of the first year's premiums, we shall readily see that it leaves an inadequate amount as a reserve at the end of the first year's claims. In order to make this clear, we will suppose that a company issues 10,000 new policies of £100 each to persons aged 30, who each pay a premium of £2.45 per annum; that interest is earned at 4 per cent.; and that 80 per cent. of these premiums are absorbed the first year in commission and expenses; and that 8 per cent. is similarly absorbed in subsequent years. We will suppose also that, owing to the healthy condition of the lives that have recently been medically examined, the mortality in the first year is 45 per cent. of the tabular rate; in the second year about 70 per cent.; and in the third year about 90 per cent. If we work out an account on this basis for three years, and compare the funds at the end of each year with the reserve required on the existing policies, according to the *H<sup>m</sup>* Table at 3 per cent., we find

In the first year a deficiency of ...	...	...	£9,220
„ second „ ...	...	...	£3,806
„ third year a surplus of ...	...	...	£1,301

These are very instructive figures, and they serve to explain why insurance companies have to look with the greatest care at their expenditure on new business. We see that the first two years of a policy's existence may very easily result in a loss to the office, should a large proportion of these policies cease to exist, and therefore it is plain not merely that the office could not afford to

give any surrender value, but that it would incur an appreciable loss by the lapsing of the policies.

It is owing to the heavy initial expenditure on new business that most companies make a rule that no bonuses are declared upon the policies until they have been in force for either two or three years. Obviously, if the expenditure were considerably greater than we have here contemplated, which in certain offices is the case, the third year also would fail to show sufficient funds to provide the reserve required by the H<sup>m</sup> Table at 3 per cent. This will make clear the fact that lapses within the first two years of effecting policies may frequently involve a loss, although in certain cases it may produce a profit and become to a small extent a source of surplus. This, however, would vary with the different conditions of various offices. A company having a very heavy initial expenditure can hardly hope to make any profit out of lapses, except on policies that are issued at exceptionally high premiums, such as Endowment assurance policies. In this case the margin between the office premium and the net cost of the assurance is greater, and may leave a certain amount of profit.

Those offices who conduct their new business at a more economical rate than we have been considering, will find that the lapse of a policy within the first two or three years of effecting it will result in an appreciable profit, although, for the most part, offices working on strictly economical lines are less likely to obtain policy holders who would require to drop their policies immediately. It will be seen, therefore, that though policies that lapse may result in a profit, they cannot as a general rule be regarded as a very appreciable source of surplus.



## DISTRIBUTION OF SURPLUS.

We have seen how surplus may be derived from a favourable mortality, from loading, from an increased rate of interest, and, under certain circumstances, from surrenders and lapses. We need not consider in detail the more obvious sources of surplus which occasionally arise, such as increase in value of investments, and may pass on to the consideration of how surplus is to be dealt with after it has been obtained. The amount of the surplus is determined by the process of valuation which has been described; such valuations are usually made every five years, although some offices value less frequently, some every three years, and some annually.

Having ascertained the total amount of the surplus, it is necessary in the case of proprietary offices to determine what proportion of it is to be given to the policy-holders and the shareholders respectively. Sometimes the shareholders receive a fixed amount or a fixed percentage on their capital; but the more usual arrangement is for the policy-holders to receive 80 per cent. or 90 per cent. of the total surplus. In Mutual offices the whole of the surplus that is divided is distributed among the policy-holders, and though at first sight it might seem that this must be better for the policy-holders than for a large profit to be taken by shareholders, yet it is not necessarily so, and it cannot be said that an office is either good or bad for policy-holders simply because it is Mutual or Proprietary. We shall refer to this again later on.

In considering the distribution of surplus to the policy-holders, we have to settle in the first place what policies are to participate, and what proportion of the surplus is properly due to each policy, and having settled the proportion of surplus that is due to each policy, there remains the question as to the form in which the policy holder should take his share of the surplus, or bonuses.

The first question that arises is whether all the participating policies that are in force are to share in the surplus or not. We have just seen that policies that have only been in force for two or three years may not have produced much surplus, even if they have produced any at all, and it is, therefore, appropriate that such policies should not have bonuses allotted to them until they have been in force for a longer time. A bonus is sometimes allotted to them from the commencement, but does not actually vest in the policy until after the lapse of about three years—that is to say, if the policy-holder were to die within the three years, the sum assured would be paid without any addition on account of bonus. If he survives, say, five years, the bonus for five years, or in some cases for four years, would be paid.

The most usual system of distributing the surplus that is at present adopted in Great Britain is that of letting all the participating policy-holders, with the exception of those, perhaps, whose policies have only been in force for one or two years, share in the surplus at each valuation. If a policy has been in force during the whole five years of the valuation period, it is obviously entitled to a larger bonus than a policy paying the same premium which has only been in force for three or four years, and therefore the length of time during the valuation period which a policy has been in force has to be taken into account.

But a more important distinction is made in most offices between policies that have been in force for a long time and those that have only been issued in recent years. A policy that has been in existence for many years has accumulated a large reserve or policy value, so that most of the surplus derived from interest is earned by the old policies, and a fair distribution of surplus ought to provide that the gain from interest is received by the old policies which have earned it; in the same way a policy that has contributed disproportionately largely to expenses by being heavily "loaded" ought to get a larger share of the surplus derived from "loading" than other policies receive.

In order to divide the surplus as fairly as possible, several offices take a great deal of pains in analysing the various sources of surplus, and dividing the bonuses as nearly as possible in proportion to the contributions of the various policies to the surplus. This is not an easy matter to carry out quite satisfactorily, and there is a growing feeling that substantial justice is done by the system of giving a compound reversionary bonus, uniform at all ages.

A compound reversionary bonus, uniform at all ages, means that the same amount is added to every policy for each £100 that the policy, with previous bonuses added on, amounts to; the bonus so given is payable at death, or at the maturity of the policy, and is the same for all policies at whatever age the policy-holder was when he took out the policy. This system is very easily understood by policy-holders, and if not strictly so fair as some forms of the contribution plan, which analyses the sources of surplus and distributes the bonuses accordingly, yet it is substantially correct, and is widely adopted.

The working of the uniform compound reversionary bonus system is exhibited in the following table, which shows how much a policy would amount to if it received quinquennially a bonus at the rate of 30s. per cent. per annum on the sum assured and previous bonuses.

Table showing Results on Policy of an Uniform Compound Reversionary Bonus of 30s. per cent per annum.				
No of Years in force.	Amount of Policy before each Bonus.	Amount of Bonus.	Amount of Policy after each Bonus.	No. of Years in force.
	£ s d.	£ s d.	£ s. d.	
5	100 0 0	7 10 0	107 10 0	5
10	107 10 0	8 1 3	115 11 3	10
15	115 11 3	8 13 4	124 4 7	15
20	124 4 7	9 6 4	133 10 11	20
25	133 10 11	10 0 4	143 11 3	25
30	143 11 3	10 15 4	154 6 7	30
35	154 6 7	11 11 6	165 18 1	35
40	165 18 1	12 8 10	178 6 11	40
45	178 6 11	13 7 6	191 14 5	45
50	191 14 5	14 7 7	206 2 0	50

The bonus being £1 10s. per cent. per annum is £7 10s. per cent. for five years, and the bonus for the first five years is just £7 10s. ; but for the second five years the bonus is £7 10s. per cent. upon £107 10s., and amounts to £8 1s. 3d., and so on throughout; so that the longer the policy has been in force the bigger the bonus becomes, as ought to be the case, owing to the large surplus earned in most good offices by interest on the reserves on policies that have been in force for a long while.

Some offices give a uniform *simple* reversionary bonus, which means that the same bonus is given to every policy of the same amount, irrespective of previous bonuses.

age at entry, or duration of policy. Thus, if the bonus is £2 per cent. per annum, an addition of £10 is made every five years to each policy for £100. This at first is much more than a compound bonus of 30s., but after 25 or 30 years it becomes less, and after 50 years the total amount of the simple bonuses of £2 per cent. is less than the total amount of the compound bonuses of 30s per cent. This is seen in the next table, which shows how the two systems work out.

Table comparing results of Compound Bonus of 30s per cent with results of Simple Bonus of 40s per cent						
Years in force	Amount of Bonuses		Amount of Policies with Bonuses added.		Years in force	
	Compound, 30s per cent	Simple, 40s per cent	Compound, 30s per cent.	Simple, 40s per cent		
	£ s d	£	£ s d	£		
5	7 10 0	10	107 10 0	110	5	
10	8 1 3	10	115 11 3	120	10	
15	8 13 4	10	124 4 7	130	15	
20	9 6 4	10	133 10 11	140	20	
25	10 0 4	10	143 11 3	150	25	
30	10 15 4	10	154 6 7	160	30	
35	11 11 6	10	165 18 1	170	35	
40	12 8 10	10	178 6 11	180	40	
45	13 7 6	10	191 14 5	190	45	
50	14 7 7	10	206 2 0	200	50	

When we see that an office gives a uniform reversionary bonus of so much per cent., it is necessary to know if it is on the sum assured only, or on the previous bonuses as well—that is to say, whether it is simple or compound. Moreover, if two offices give bonuses that for the average of policy-holders are about equal, but one of which gives simple and the other gives compound

bonuses, it is clear that an old man had better assure in the office giving simple bonuses, because he probably will not live long enough for the compound bonuses to work out to his advantage; while a young man had better select the compound bonus, which in years to come will probably tell materially in his favour.

This is one of the things, but only one among many, that makes it advisable for intending assurers to consider carefully what office and policy best suit their individual circumstances. If, as is mostly the case, they cannot judge correctly by their own knowledge, a very appreciable benefit may be obtained by seeking the advice of an independent expert on the subject.

We must not conclude too hastily, however, that any method of dividing the surplus works out disadvantageously for any class of policy-holders, because almost any system of allotting bonuses may work equitably if the premiums are arranged in reference to the systems under which the profits are distributed. This applies not only to whole-life policies of different ages at entry and varying duration, but to other kinds of policies, such as endowment assurance, as well.

One office will give the same reversionary bonus to both whole-life and endowment policies, while another may give a smaller bonus to endowment than to whole life, but if the rates of premium and the system of division are properly chosen, both the same bonus and the different bonus may be fair and right. Shortsighted people, unable to see all the facts, are very apt to think Insurance Companies wrong, just as they are given all through life to think people who differ from them about other matters are wrong, overlooking the fact, entirely obvious to broader minded folk, that circumstances may be so different in different cases that others may be right.

without our being wrong, even though our opinions differ. But though a company's methods may be right and fair on the whole, it constantly happens that the conditions are exceptionally favourable to some ages or classes of policy-holders, and the wise man will choose the policy that offers the best return in his own case.

Whatever system of dividing the surplus an office adopts, the option is nearly always given to the policy holder of taking his bonus in different ways. He may have a reversionary addition made to his policy, that is to say, an amount is added to his policy, which amount is paid only at death, or in the case of endowment assurance which becomes payable at a certain age or after a fixed number of years, at the maturity of the policy.

Instead of taking his bonus in this way the policy-holder may take its present value in cash, and then, of course, the cash value of a reversionary addition depends upon the age of the policy-holder at the time when the bonus is declared. If, for instance, two policy-holders aged respectively 30 and 60 at the time the bonus is declared, are each entitled to a reversionary bonus of £10 on whole-life policies, the cash value to the one aged 30 is about £3, and to the one aged 60 about £6. To policy-holders aged 30 the £10 would on the average have to be paid in 34 years, while to policy-holders aged 60 the payments on the average would fall due in 14 years; therefore, the cash value of the one is much less than the cash value of the other.

Some offices give a uniform cash bonus to all policies, and allow the bonus to be taken in other ways, in which case, of course, the age again comes in and determines the amount of the bonuses taken in other forms.

Yet another way in which bonuses may be taken is

in reduction of premium. By this system the amount payable to the policy-holder at his death does not vary from the original sum assured, the bonus being applied to reduce the annual premium payable to the office. The reduction in premium is arranged in two ways: the policy-holder may either have his premium permanently reduced by a comparatively small amount, or he may have it reduced for a comparatively large amount until the date of the next valuation. Thus, supposing the premium to be £10 per annum, the policy to have been taken out at the age of 30, and the bonus to be declared 10 years afterwards, namely, when the policy-holder has reached the age of 40, he might probably as the result of the bonus earned in five years only have to pay £9 10s. per annum instead of £10 per annum for the rest of his life. If, however, he took the bonus in reduction of premium for 5 years, he would only have to pay £8 5s. per annum till he reached the age of 45, when the full premium would again become payable, except that another bonus would then fall due, and if this fresh bonus were taken in reduction of premium for the following five years, his premium between the ages of 45 and 50 would be reduced as much as, and probably more than, it was between the ages of 40 and 45.

In this example we have supposed that the first bonus to which the policy-holder became entitled at the age of 35, was taken in cash or as a reversionary addition to his policy, for it is the custom of most offices to give the policy-holders at each valuation the option of taking the bonus in any one of the three ways, although it is sometimes stipulated that the option must be exercised once for all at the first declaration of bonus.

It sometimes happens that when the bonus is taken .



in reduction of premium, the premium becomes extinguished in the course of 30 to 40 years, after which the bonus may be taken in cash or added to the policies. This, of course, happens in fewer years, the greater the age of the policy-holder at the time of effecting the assurance.

There are some offices who make a speciality of giving bonuses solely in reduction of premium. They commonly charge a high premium to commence with, and reduce it by increasingly large percentages as time goes on.

In order to see exactly how the three different systems of taking the bonuses may be worked out, we give in the following table a specimen policy commenced at the age of 30 at a premium of £2 9s. per annum, assuming that throughout the whole of its duration a compound reversionary bonus was declared at the rate of 30s. per cent.

Table showing on a Whole-Life Policy for £100 effected at the age of 30, the results of taking Bonuses in various ways. The Reversionary Addition is a Compound Bonus of 30s. per cent per annum.

Years in Force.	Reversionary Additions		Cash Bonus			Reduction of Premium			
	Amount of Policy	Annual Premium	Amount of Policy	Cash Drawn	Annual Premium	Permanent.		For Five Years.	
						Amount of Policy	Annual Premium	Amount of Policy	Annual Premium
	£ s d	£ s. d.	£	£ s. d.	£ s. d	£	£ s. d	£	£ s. d.
1 to 5	100 0 0	2 9 0	100	nil	2 9 0	100	2 9 0	100	2 9 0
6 to 10	107 10 0	2 9 0	100	2 11 0	2 9 0	100	2 5 8	100	1 17 9
11 to 15	115 11 3	2 9 0	100	3 1 0	2 9 0	100	2 1 4	100	1 15 7
16 to 20	124 4 7	2 9 0	100	3 14 0	2 9 0	100	1 15 11	100	1 12 6
21 to 25	133 10 11	2 9 0	100	4 9 0	2 9 0	100	1 8 10	100	1 8 11
26 to 30	143 11 3	2 9 0	100	5 7 0	2 9 0	100	19 2	100	1 4 4
31 to 35	154 6 7	2 9 0	100	6 8 0	2 9 0	100	5 11	100	19 4
36 to 40	165 18 1	2 9 0	100	7 13 0	2 9 0	100	*	100	13 0
41 to 45	178 6 11	2 9 0	100	8 18 0	2 9 0	100	*	100	5 0
46 to 50	191 16 5	2 9 0	100	10 6 0	2 9 0	100	*	100	*

\* From this point no more premiums are payable, and subsequent bonuses can be taken in cash.

per annum on the sum assured and previous bonuses. The tables employed for changing one form of bonus into another vary somewhat in different offices, but in calculating this table we have used fairly, average rates for the commutation.

Policy-holders usually settle to take their bonuses in the form that best suits their circumstances at the time of making their choice, but it should be noticed that some offices give proportionately better results in one form than in another; so that if a policy-holder is insured in two or three offices, he may possibly, if it suits his circumstances, gain some appreciable advantage by taking the bonus from one office as a reversionary addition, the bonus from another in cash, and from a third in temporary or permanent reduction of premium.

## CHOICE OF A POLICY.

Up to this point we have been considering, for the most part, the main principles upon which the science of life assurance is based, and are, consequently, the better able to turn now to those points in the practice of life assurance with which policy-holders are chiefly concerned. We will now suppose that a man or woman desires to take out a policy, and will consider the various points that may be taken into account in so doing.

In all probability the intending assurer will be called upon by the agent of some company, and, without examining closely for himself, will make his investment in accordance with the advice of the insurance agent. It is certainly much better to do this than not to assure at all, for nearly every one of the offices at present doing business in Great Britain is solvent, and certain to pay the sum assured when it becomes due; but the assurer will do better to consider the relative merits of different companies and of various policies. If he has not available the necessary information, or if he lacks the requisite knowledge, he would do well to consult some independent authority upon the subject, always provided that by so doing he does not neglect to take out a policy. The really important thing is to be assured; it is only of additional importance to be assured to the best advantage. We will imagine, however, that the reader is not only wise enough to take a policy, but wise enough to want to take the best policy, and we will try to show him how to do it.

## PROFIT OR NON-PROFIT.

There are two broad distinctions between policies—those that participate in the surplus or profits, and those that do not participate. We have already had occasion to explain that, in arranging the rates for non-participating policies it is necessary to assume a mortality slightly greater than is expected to occur, a rate of interest slightly less than will probably be earned, and a rate of expenditure slightly higher than is expected to be incurred. The margin so provided for contingencies that may occur during the existence of the policy naturally has to be made so as to leave the office on the safe side, and it has to be provided at the cost of the non-participating policy-holders.

In individual cases, of course, the estate of the policy holder, whether sharing in the surplus or not, who dies after the payment of only a few annual premiums, reaps a large benefit from his early death. But the matter has to be considered in regard to average results, not in regard to individual cases.

Participating policy-holders receive back in the form of bonuses the amounts that they pay in excess of the actual cost, and although the rates for participating policies are higher than for non-participating, yet the non-participating rates are practically certain to be above the actual cost, and to be a source of profit to the insurance company. Therefore, as a general rule, it is not advisable to take a non-participating policy.

Under certain circumstances, however, it may be well

to do so. There are one or two offices in which either the non-participating rates are so low, or the bonuses are so small, that if it is for any reason necessary to insure in such an office it is to the advantage of the policy-holder<sup>1</sup> to take a non-participating policy. But the most frequent circumstances under which such policies become necessary are in connection with loans or other financial arrangements, where a policy has to be taken as collateral security, and it is desired to effect it at the lowest possible rate.

We shall see presently (p. 77) that participating policies may be secured for an even lower premium than non-participating, but such policies would not always be satisfactory for purposes of security, and when the policy is required as security for a loan from the insurance company, it is the practice of some offices to require the policy to be effected at non-participating rates.

There are certain kinds of policies, such as assurance for a short term, on which the premiums are very low, and under which the sum assured is only payable in the event of death during the term, which are only issued on the non-participating plan, but these are comparatively exceptional cases, and do not affect the kind of policy that most people require.

As a matter of fact about 83 per cent. of the total assurances in force in the United Kingdom participate in the profits, and 17 per cent. are non-participating.

It may confidently be said that, except where special circumstances require the assurance to be non-participating, it is more advantageous to the policy-holder to take a policy that will share in the profits.

## WHOLE-LIFE OR ENDOWMENT POLICIES.

Having settled that, if possible, the policy should participate in the surplus, the next question that arises under ordinary circumstances is whether the policy is to be for the whole term of life, or to be endowment assurance payable on attaining a certain age, or at death should it occur previously.

Seven years ago endowment assurances only formed 6 per cent. of the total assurances in force, while the policies for the whole of life formed 90 per cent. of the total. At the present time endowment assurances form 13 per cent., and whole life assurances 83 per cent. of the total assurances in force. The proportion of endowment assurances is increasing every year, and in some offices the new endowment assurance policies exceed in both number and amount the new policies on the whole life plan. This shows quite clearly that the tendency at the present time is largely in favour of endowment assurances, and we think that under most circumstances this tendency is a right one.

The premiums payable on whole-life policies are considerably less than the premiums payable for endowment assurance of the same amount. Under life policies the premium has to be paid for the whole of life, and the sum assured is not payable till death, while under endowment assurance the premium is only payable for a certain number of years should the policy-holder survive, and until death should he die before the policy matures,

while the sum assured is likewise payable at a fixed date, unless death should occur before that date arrives. In the case of an early death the premiums under policies of both kinds are payable for the same length of time, and the sums assured are also payable at the same time, namely, at death. Therefore, in the case of death before the expiration of the endowment period the office gains and the policy-holder loses by endowment assurance, which requires higher premiums, but under the majority of endowment assurance policies the policy-holders survive the endowment period, and the premiums, though higher, are paid for a fewer number of years, and the sum assured falls due at an earlier date than under whole life policies. Obviously, therefore, endowment assurance involves higher premiums than assurance for life. How much higher those premiums are depends on the number of years before the endowment assurance policies mature.

This makes it clear that if it is important for a policy-holder to be insured for as large an amount as possible at the smallest possible cost, the kind of assurance best suited to his circumstances is whole-life and not endowment. In the common case of a man with a small income and no property, whose duty it is to provide the means of support to a family in the event of his death, it is nearly always best to take a life policy.

## THE PAYMENT OF PREMIUMS.

Assuming then the case of a man who wishes to take a participating policy for the whole term of life, namely, under which the sum assured is payable only at death, we next have to consider

- (1) Whether he will pay, apart from the question of bonuses, the same premium throughout life.
- (2) Whether he will pay a reduced premium for the first few years, and a higher premium for the rest of life.
- (3) Whether he will adopt one of the modern systems under which future bonuses are anticipated, and the premiums thereby reduced from the commencement.
- (4) Whether he will share in the bonuses at each valuation, or postpone the participation in any bonuses till he has survived a certain number of years; or
- (5) Whether he will pay the premiums for the whole of life only for a limited number of years.

We will take these points in order.

The most usual plan is to pay the same premium from the commencement, involving no increase in future years, and leaving all bonuses to be dealt with as they arise. A consideration of the other methods will show that if this can conveniently be done it is generally the most advantageous plan, although circumstances, such as the probable receipt of an increasing income in future years, may make it advisable to assure for a larger sum than could otherwise be afforded, though it involves foregoing a small amount of benefit.



## REDUCED PREMIUMS FOR FIRST FEW YEARS

The system of paying a greatly reduced premium for the first five years or so, and subsequently paying an increased premium for the rest of life, has little to recommend it. The extent of the reduction varies in different offices, and is carried out in slightly different ways. The greater the temporary reduction, and the longer the term during which the reduced premium is paid, the greater will be the premium for the rest of life. Practically it means that term assurance is granted for the first few years with an additional charge for the right to effect whole life assurance without further medical examination at any time during an agreed period, after which the premium charged is that for the attained age of the assured at the time when the payment of full premiums commences.

As is almost always the case, there are some exceptional circumstances which this system would suit, but in itself it is less beneficial to the assured than if the full premium were paid from the commencement, or than the system next to be considered, under which future bonuses are anticipated. It is less satisfactory, because the policy does not participate in profits until the full premiums begin. The practical date of effecting assurance is postponed for five years, or whatever the term may be during which reduced premiums are paid, and the greater the age at which assurance is effected the higher the premium, besides which the interest charged under some methods of carrying out this plan is at a higher rate than the office is earning. The loss in connection with this system may not amount to very much, but it is certainly desirable to avoid it if circumstances permit.

## REDUCTION OF PREMIUM BY ANTICIPATION OF BONUS.

A somewhat more satisfactory system of reducing from the commencement the amount of premium payable on a policy is that frequently called the "Discounted Bonus" plan, which has been recently introduced. By this method it is assumed that the bonus will reach a certain amount, but the policy-holder, instead of waiting for the end of the valuation period when the bonus is declared, is allowed to anticipate the bonus and reduce the premium from the commencement.

It of course has to be stipulated under this system that if the bonus actually earned should be less than the anticipated bonus, the policy-holder must either pay the difference or let it stand as a charge upon his policy, thereby reducing to a slight extent the amount of the sum assured. On the other hand, if the bonus exceeds the amount anticipated, the difference is available for either a further reduction of premium or a reversionary addition to the policy, or it may be taken in cash. This appears to be an admirable system for effecting assurance at as small a cost as possible.

The uncertainty that exists in regard to interest, mortality, and expenditure, which is the reason for charging a higher premium than is actually necessary, and returning it in the shape of bonuses, is, under this system, adequately provided for without requiring from the policy holder a payment appreciably in excess of the actual cost of the assurance. This system is perhaps not quite so beneficial to the policy-holder as if he paid the full premium, and waited till the end of the valuation period for the declaration of the bonus, chiefly for the reason that in making the necessary calculations,

a rate of interest is rightly assumed which is slightly in excess of that which the company will probably earn. The difference, however, is very slight, and for a person wishing to assure for a fixed sum at the smallest cost, participating assurance, with reduction of premium by anticipation of the bonus, is an eminently satisfactory system.

If, however, the policy-holder, instead of wishing to get from the outset the maximum assurance at the minimum cost, desires to invest a certain amount annually in whole-life assurance, and get the biggest possible return for his outlay, he would probably do better to assure at the full rates and not anticipate the bonuses. The reduction from the full rates that can be made if the bonuses are anticipated is in some cases as much as 25 per cent, the premium under the "Discounted Bonus" system being three-quarters of what it would be if the bonuses were not anticipated.

### DEFERRED BONUSES.

If a policy-holder requiring a whole-life participating policy decides to pay either the normal rate of premium, or to pay a reduced rate for the first few years and a higher rate subsequently, he will next have to consider whether he will take a policy under which the bonuses are allotted at every valuation, usually every 5, sometimes every 3 or 7 years, or whether he will forego all bonuses in the event of his dying before the expiration of a fixed number of years, in the hope of receiving a larger bonus should he survive the agreed term. The cost price system is naturally not applicable to schemes under which the bonuses are in this way deferred.

One system of deferring bonuses, of which some offices make a great feature, is that of letting no policy-holders participate in the surplus until the premiums

they have paid, accumulated at 4 per cent. compound interest, amount to the sum assured. Inasmuch as the premium for the assurance of a given sum, say £100, is greater at the older ages than it is at the younger ages, the length of time it takes for the premiums to accumulate in this way to the £100 assured, of course, varies with the age of the policy-holder. Approximately, it may be said that a policy-holder aged 30 at entry will not be entitled to any share in the surplus till the expiration of 26 years; if age 40 at entry, till the expiration of 22 years; if aged 50 at entry, in about 17 years, and if aged 60 at entry, in about 12 years. A prominent feature in most schemes of this sort is that the rates of premium charged are much less than the rates usually charged for earlier participation in bonus, so that, although the policy-holder pays slightly more than he need pay for non-participating assurance, which is all he gets should he die before the expiration of the agreed term, yet he does not pay much more, and will probably receive a handsome bonus should he survive until his premiums have accumulated at interest to the sum assured.

Instead of waiting until the premiums have accumulated to the sum assured, it is sometimes arranged that no bonuses are payable until the policy-holder has attained his expectation of life, that is to say, until he has lived as long as the average of a large number of people would live who were of the same age as he was at entry.

It is, of course, obvious that a considerable number of policy-holders will die before reaching the time at which they become entitled to bonuses, and therefore the bonuses which would have been paid to them under the more usual system of early distribution of bonus, become available for the survivors under the deferred

bonus system, and consequently cause the deferred bonus to be proportionately large in amount.

The system of deferring bonuses is in some sense less completely assurance than the system which distributes the surplus earlier and more frequently. The essential characteristic of life assurance is to eliminate by combination the financial inequalities arising from the uncertainty of life. A number of people paying equal (or, according to the benefits to be received, paying relatively equal) amounts, agree that the estates of such of them as die soon shall not suffer, so far as the investment in insurance is concerned, by early death. Apart from the question of the initial cost of securing new business, a man who has only paid one premium is as much entitled to his £100 or his £1,000 as the man who has paid fifty premiums. Each has bought an equal chance and is equally entitled, not merely to the principal sum, but to any surplus that may have arisen owing to the premium charged having been in excess of what was actually required.

Under deferred bonus systems this principle is departed from so far as bonuses are concerned. The risk of the original amount assured is carried by the whole body of policy-holders, while in regard to the surplus, each policy-holder, to a certain extent, carries his own risk and backs his own life to survive. If a man were certain of extraordinary longevity he would select a deferred bonus policy. If he were certain of an early death he would select an immediate bonus policy, but being in ignorance of the length of time he has to live, he, by taking a deferred bonus policy, stakes a certain proportion of his premium on his own life, obtaining a good return if he survives, and losing if he dies soon.

It cannot be said in general terms that either the

immediate or deferred bonus method is the better. If circumstances are such that a smaller sum would be adequate to meet the liabilities left behind in the event of an early death, while a larger sum would be required for the same purpose if death were long postponed, then a deferred bonus policy might be preferred. If the circumstances are reversed, an immediate bonus policy would be more appropriate. But, as a rule, circumstances cannot be accurately known in this way, and even if they were, the difference between the two classes of policies is not sufficiently great to enable the matter to be so decided. It will almost always be settled by the personal feeling of the policy holder, the element of speculation in the deferred bonus system appealing to some, while the completeness of the assurance principle is the stronger attraction for others.

### TONTINE POLICIES.

There is yet another system under which bonuses are deferred, which, while essentially similar to, is practically different from, the deferred bonus plan we have just been describing. Under the tontine system as now worked, the surplus is reserved for those who survive the fixed tontine period of 10, 15, 20, or any other number of years that may be agreed upon. At the end of the tontine period the surplus is divided among the survivors, it being optional to the policy holder to take his bonus in cash, to apply it to the purchase of additional assurance, to pay up all, or as much as possible, of any future premiums on his policy, or to purchase an annuity. If death occurs during the tontine period, the only amount paid is the original sum assured.

One way of conducting the tontine system, although

it is not always adopted, is to divide the policy-holders into classes, the mortality and expenses of each class being kept separate and charged to the policy-holders of that class, the whole of the surplus arising in the class being distributable among the survivors. To do this satisfactorily, however, without undue and undesirable fluctuations, it is necessary that there should be a large number of policy-holders in each class, because average results cannot be relied upon unless there are a large number of persons concerned. If you toss a shilling a dozen times, it may very likely not come down head six times and tail six times; but if you toss it a million times it is practically certain, assuming the coin and the tossing to be perfectly fair, that the number of times it comes down head and the number of times it comes down tail will be very nearly equal. It is the same with mortality — where a large number of persons are concerned the results may be confidently predicted; where a small number are under observation the results are uncertain in the extreme.

Tontine policies at present are not usually characterised, as most other deferred bonus schemes are, by an exceptionally low premium. The rates are generally about the same as those ordinarily charged for immediate bonus assurance. So far, therefore, the tontine system has a greater element of speculation about it even than other deferred bonus systems, because the excess over either non-participating or discounted bonus assurance being greater, the extent to which a policy-holder backs his own life is larger.

But this excess of premium causes those who die during the tontine period without receiving any bonus to leave large amounts available for those who survive, and, consequently, the bonuses to the survivors at the

end of the tontine period are usually large. There is the greater inducement to a man who believes in his own longevity to take a tontine policy, because of the big bonuses at the end of the period. There is the greater inducement to a man who expects to die before the expiration of the tontine term to avoid such a policy, because of the greatly increased cost of this kind of assurance as compared with non-participating or discounted bonus rates.

It is, of course, true that even at high rates the estate of a man who dies during the earlier years of assurance receives a large return for the premiums that have been paid; but it is none the less a fact that a better return might have been attained by effecting the assurance at a lower premium. At the older ages under whole-life policies, and still more frequently under endowment assurance policies, the premiums paid would exceed the sum payable under the policy should death occur shortly before the maturity of the tontine period. Suppose, for instance, a policy-holder had taken a tontine policy with a period of twenty years, and died after paying eighteen premiums, he would in very many cases have paid to the Insurance Company appreciably more than the Insurance Company pays to his estate.

To meet this objection a scheme has been devised under which a slightly higher premium is payable, but the whole amount paid in premiums (or any other amount that may be agreed upon) is returned, in addition to the sum assured, in the event of the policy-holder dying before the expiration of the tontine period. Under this policy good results are obtained if death occurs at any time during the tontine period; while, if the tontine period is survived, the bonuses may be larger than could be obtained from the same office under immediate bonus policies.



It has frequently puzzled the uninitiated to know how an office can manage not merely to give the sum assured to a policy-holder who does not survive the tontine period, but to return to him also the whole of the premiums he has paid to them, so that he may be said to get the sum assured for nothing; and yet give to the surviving policy-holders a bigger bonus, in consequence of those who died during the tontine period not having shared in the surplus at all. The explanation is very simple. In addition to the ordinary rates under which the policy-holder would receive only the sum originally assured in the event of his death during the tontine period, the policy-holder pays a small extra premium practically for term assurance. Thus, supposing him to be paying a premium of £10 a year, with an arrangement by which if he dies during the tontine period, say of twenty years, all the premiums paid by him will be returned to his estate, part of his premium is really employed to assure £10 if he dies during the first year, £20 if he dies during the second, £30 if he dies during the third, and so on; while if he does not die during the tontine period, the extra that he has paid for the purpose of securing the return of the premiums, yields him no further benefit than the chance of having them returned in the event of his death. It is clear, therefore, that the extra amount so paid by a large number of policy-holders suffices to return the premiums to the small number of policy-holders who die during the tontine term.

This system, in some sense, eliminates the speculative element from tontine assurance, though it does so by introducing an additional speculation. It is practically a process of "hedging." A tontine policy-holder paying higher rates than those for either discounted bonds or

non-participating assurance, backs his own longevity to the extent of the extra premium that he pays, but by adopting the return premium, or contingent bonus, system, he practically stakes in favour of his own early death an additional premium.

The one advantage, therefore, to a certain extent, cancels the other, though the benefits under the return premium system vary so greatly that the duration of the policy may be such as to much more than cancel the disadvantages of dying during the tontine period, should death occur towards the close of the term. Thus a policy holder assured by a twenty-year tontine endowment policy for £1,000, at a premium of £50 a year, would receive £1,050 if he died the first year, £1,500 if he died after paying ten premiums, and £2,000 should he die in the twentieth year; while if he survived just over twenty years, and so participated in the tontine bonus, he would not receive more than about £1,600, £1,000 being the original sum assured, and £600 being the cash bonus at the end of the term.

This provision for returning the premium or giving a contingent bonus in the event of death during the tontine term adds appreciably to the premium payable, and may even cause the deferred bonus to be no larger than immediate bonuses would have been. In order to lessen this extra cost, it is sometimes arranged that the contingent bonus shall only be paid during the last few years of the tontine period: for instance, if the policy holder dies within fifteen years of effecting the assurance, he receives only the face value of the policy, but if he dies after the fifteenth and before the end of the twentieth year, his executors receive an addition to the original amount of the assurance. This considerably lessens the cost of the contingent bonus at the same time that it prevents the tontine

system from proving at any time an unsatisfactory investment. The payment of the face value of the policy within fifteen years would be a good return for the premiums paid; the contingent addition for the remaining years of the tontine term would cause the amount payable also to be in excess of the premiums paid, while the bonus at the maturity of the tontine period would be larger than if the profits had been distributed at more frequent intervals.

### LIMITED PREMIUMS.

When it is not necessary to obtain as large an amount of assurance as possible for a certain premium, it is often advisable to take a policy which can be paid for by a limited number of premiums, although the sum assured is not payable till after death. A policy of this kind is intermediate in character and cost between whole-life and endowment assurance; like whole-life the sum assured is only payable after death—like endowment assurance the number of premiums is limited. There is the advantage of knowing that however long life may last, there is no possibility of paying a very large number of premiums; it fixes the cost of the assurance, and people who live to a very advanced age must often wish they had effected their assurance on this plan. The cost is, of course, greater than when the premium has to be paid for the whole of life; but it need not be very much greater, as is shown by the following table of fairly average rates for participating assurance payable at death.

Table showing Average Premiums for Insurance of £100 with Profits.																					
Premiums Payable				Age at Entry																	
				21			30			40			50			60					
				£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.			
Annually for Life .				1	19	8	2	8	11	3	4	9	4	11	2	7	0	9			
" " 25 years				2	12	0	3	0	6	3	14	2	4	17	3						
" " 20 "				2	19	7	3	9	8	4	2	10	5	4	9	7	4	6			
" " 15 "				3	11	8	3	18	9	4	18	7	6	1	5	7	19	7			
" " 10 "				4	17	2	5	11	3	6	11	9	7	19	1	9	1	6			
" " 5 "				8	14	3	9	19	10	11	15	10	14	0	1	16	9	6			
Single Premium .				39	7	0	44	10	8	52	8	3	62	3	6	70	14	5			

The reason why the premiums are higher when limited in number is obviously because the office would, in the majority of cases, receive a larger number of premiums if they were payable for life than if they were limited in number, and as it is necessary for an office to receive equal payments for equal benefits from all classes of policy-holders, the premiums that are fewer in number must be larger in amount—the larger amount of interest earned by the higher premiums of course being taken into account.

The principle of limiting the number of premiums may be carried to any extent that is desirable, its greatest extent being reached when the assurance is effected by a single payment. This is seldom advisable or convenient, and is largely destructive of the fundamental idea of insurance; still, in the purchase of a policy as an investment, it is sometimes advantageous, as will be seen in the chapter on life assurance as investment.

One caution may be added here: the bonuses allotted to policies subject to only a limited number of premiums, are not always the same as to policies effected by premiums payable for life. When there is a difference it is usually

in favour of policies on which premiums have to be paid for life.

Closely connected with the limitation in the number of premiums payable under a policy is the practice of applying bonuses to the reduction of premiums (see p. 67). It has already been explained (p. 77) that they may be used to reduce the premiums from the commencement, but this can scarcely result in the extinction of premiums at any time prior to death. If, however, the full tabular premiums are paid to begin with, the premiums are gradually reduced and may ultimately cease. Subsequent bonuses can be taken either in cash or as an addition to the sum payable at death.

This cessation of premiums usually happens earliest under policies effected at high premiums, so that the result is not very different from limiting the premiums to a definite number, provided the limited number arranged to be paid is large considering the age of the policy-holder.

One feature that is almost universally characteristic of assurance by limited premiums is, that in the event of the policy-holder ceasing to pay the premiums, he can claim a paid-up policy for the same proportion of the original sum assured that the number of premiums paid bears to the number of premiums originally payable; thus, if he has taken a policy for a thousand pounds subject to annual premiums for twenty years, and after having paid five premiums wishes to pay no more, he can claim a paid-up policy for £250, being one quarter of the original amount assured, just as the number of premiums paid is one quarter of the number of premiums originally arranged for. It is sometimes stipulated, however, that the paid-up policies so obtained shall not receive bonuses, even though a participating policy was originally taken.

The advantage to be gained by effecting policies subject

to only a limited number of premiums is that the insured chooses when such payments shall cease. The disadvantage in many cases is that, as a necessary consequence, the premiums have to be larger than if they are to be paid during the whole of life. The advantage may be retained and the disadvantage to a considerable extent got rid of, by applying the discounted bonus system explained on page 77. Specimens of average premiums payable for life and for a limited number of years, both with and without the application of the discounted bonus plan, are shown in the following table. It will be seen from this that assurance may be effected by the payment of premiums both limited in number and moderate in amount.

Table comparing Premiums for Assurance of £100 on the Ordinary and the Discounted Bonus Systems.									
Premiums payable Annually for	Age at Entry, 30			Age at Entry, 40.			Age at Entry, 50		
	Ordinary		Discounted Bonus.	Ordinary		Discounted Bonus	Ordinary		Discounted Bonus.
	£	s	d	£	s	d	£	s	d
Life . . . . .	2	8	11	1	19	2	3	4	9
20 years . . . . .	3	9	8	2	16	3	4	2	10
15 " . . . . .	3	18	9	3	7	4	4	1	7
10 " . . . . .	5	11	3	4	10	5	5	8	8
				6	11	9	7	19	1
							6	14	2

If it should happen that it suits the circumstances of the policy-holder to commence with the lower premium required on policies subject to premiums for the whole of life, it may sometimes prove desirable after a policy has been in force for some years, to then arrange with the office to pay a higher premium for a limited number of years. In agreeing to such an alteration, however, the company is bound to protect itself against incurring any disadvantage from a change made to suit the convenience of a policy-holder; it is clear that selection

might tell appreciably against an assurance company. A man who had been paying premiums for a considerable number of years and who remained in a state of health that seemed to promise him a long life, might be glad to limit the number of his future payments although increasing their amount; on the other hand, a man in delicate health would naturally prefer to continue the lower premium, feeling, perhaps, that there was no great likelihood of his life extending over a long number of years.

### HALF-YEARLY AND QUARTERLY PREMIUMS.

In talking about life assurance premiums it is usually assumed that they will be paid annually, but it is sometimes convenient to pay half-yearly or quarterly. It is customary to charge 5 per cent. more when premiums are paid half-yearly, and  $7\frac{1}{2}$  per cent. more when paid quarterly. Thus, if the annual premium is £100 per annum, the half-yearly premium is £52 10s., or £105 per annum; the quarterly premium is £26 17s. 6d., or £107 10s. per annum.

This extra is more than is required to make up for the loss of interest on that part of the premium that is not paid at the beginning of the year. In addition to this loss of interest, however, there is the extra trouble and expense of collecting premiums more frequently, and in some cases there is a loss of premium through death occurring at a time when only one half-yearly premium has, or less than four quarterly premiums have, been paid. Some offices do not run this risk, but consider the payments as instalments of the annual premium, and deduct from the sum assured the amount of any instalments required to make up the full annual premium. But even after due allowance has been made for the expense of more frequent collection of premiums, for interest, and for a possible loss of premium in the year in which death occurs, there still remains a profit

to the company out of the extra charged for half-yearly and quarterly premiums. It is consequently better when feasible to effect policies subject to the payment of premiums annually. Indeed, it may be taken as a general rule, that it is better for the policy-holder to adhere as closely as possible to the most usual practice of the companies ; deviations from them are in various ways inconvenient to the offices, and in modifying their practice, they usually and rightly take care to see that the modification is not detrimental to the office.



## INSURING INCOME.

In recent years some of the assurance companies have been laying stress upon the difficulty of the beneficiary under a policy being able to find satisfactory investments for the assurance money. There have been many cases in which, owing to injudicious investment, the whole amount received from the life office has been lost, or has, at least, failed to yield a satisfactory rate of interest accompanied by adequate security.

To meet this difficulty many offices are now prepared to allow the money to remain in their keeping and to pay 4, 5, 6, or 7 per cent. upon the amount. This has the advantage of securing the real object for which assurance is usually effected, namely, the provision of an income for those dependent upon the assured. It must not, however, be supposed that an assurance company will guarantee the payment of a high rate of interest in a remote future without being paid for doing so. Practically what happens is this: the assurance company assumes that it will earn 3 per cent., or possibly  $3\frac{1}{2}$  per cent., in the future; the difference between the rate assumed and the rate it undertakes to pay is practically a deferred annuity, the cost of which is charged in the annual premium paid upon the policy.

Thus, if a policy is effected for £1,000 by a man aged thirty, subject to premiums payable annually throughout life, the premium would be about £25 per annum, if the £1,000 were to be paid in cash at death. Should the company undertake to retain the £1,000 after the death of

the assured, and to pay £50 a year as interest, say for twenty years, or for the lifetime of the beneficiary, undertaking also to pay the £1,000 when the payment of the interest ceases, the premium would be increased to about £28 per annum. The difference between the two premiums, namely, £3 a year, is charged for a deferred annuity of £15 or £20 a year, the amount of this annuity being the difference between the interest the company thinks it will earn and the interest it undertakes to pay. This £15 or £20 a year is practically an annuity the payment of which commences after the death of the assured and continues, either for a fixed period of twenty years, or until the death of the widow or other beneficiary of the assured.

It will be seen that an undertaking by an assurance company to pay interest and subsequently to pay the sum assured increases the amount of the premium. There is, however, another method of providing an income, by which the premium may be reduced rather than increased; it may be arranged that the £1,000 may be paid by twenty annual instalments of £50 each, instead of being paid in a lump sum of £1,000. The payment of £50 a year for twenty years is only equivalent to the payment of about £744 in cash at once, if we assume interest at 3 per cent. (see p. 10); that is to say, if £744 be invested now at 3 per cent. interest and £50 a year be paid annually out of this fund, the whole amount will be exhausted in the course of twenty years; the assurance of twenty annual instalments of £50 each is, therefore, only equivalent to the assurance of £744 payable in cash at death. Hence the premium required for assuring £1,000, payable by twenty annual instalments of £50 each, is only about three-fourths of the premium required for assuring £1,000 payable in cash at death.

If this plan of payment by instalments is adopted in

connection with the discounted bonus system, a very low premium is arrived at. So far as we know, no company at present quotes this exact arrangement in its prospectus, but several offices are quite willing to issue such a policy if required. Some idea of the premiums that would be charged for it may be gathered from the following table, which shows the application of the instalment principle in combination with the discounted bonus system under policies, on which premiums are payable for life and for a limited number of years.

Table showing Premiums for Assurance of £100, payable in Cash at Death, and payable by Instalments, under Ordinary and Discounted Bonus Systems.															
Age at Entry.	System.	Sum Assured Payable in	Premium Payable Annually for												
			Life			20 Years			15 Years.			10 Years.			
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
30	Ordinary . {	Cash at Death	2	8	11	3	9	8	3	18	9	5	11	3	
		Instalments .	1	16	8	2	12	3	2	19	1	4	3	5	
	Discounted Bonus . {	Cash at Death	1	19	2	2	16	3	3	7	4	4	10	5	
		Instalments .	1	9	5	2	2	2	2	10	6	3	7	10	
40	Ordinary . {	Cash at Death	3	4	9	4	2	10	4	18	7	6	11	9	
		Instalments .	2	8	7	3	2	23	13	11	4	18	10		
	Discounted Bonus . {	Cash at Death	2	10	5	3	8	9	4	1	7	5	8	8	
		Instalments .	1	17	10	2	11	7	3	1	2	4	1	6	
50	Ordinary . {	Cash at Death	4	11	2	5	4	9	6	1	5	7	19	1	
		Instalments .	3	8	5	3	18	7	4	11	1	5	19	4	
	Discounted Bonus . {	Cash at Death	3	14	7	4	5	3	5	2	4	6	14	2	
		Instalments .	2	15	11	3	3	11	3	16	9	5	0	8	

In many cases it would be sufficient to provide an income for twenty years after the death of the assured, a more remote future being left to look after itself. If, however, a man desires to provide for those dependent upon him for a longer period than twenty years after his death, he may provide that the payment of the sum assured

be spread over a larger number of years; a policy for £1,000 may be paid by twenty-five instalments of £40 a year, or by thirty instalments of £33 6s. 8d. a year. If even this arrangement is not satisfactory, some companies are prepared under a £1,000 policy to guarantee the payment of £50 a year for twenty years as a certainty, and to continue the payment of £50 a year throughout the lifetime of the beneficiary, should he or she survive the death of the assured by more than twenty years. In this case the beneficiary has to be named in the policy, and the premium varies according to the age of the beneficiary, as well as according to the age of the assured. This provision, like the case referred to on p. 92, is also made by charging an extra premium for the purchase of an annuity, which is deferred until twenty years after the death of the assured and is then only payable if the beneficiary is alive.

An income may also be provided during life by an Endowment Assurance Policy. Some offices undertake to hold the sum assured from the maturity of the policy till the death of the assured, paying, meanwhile, 4, 5, or 6 per cent. annually, as may be arranged, and at the death of the assured paying the amount of the policy in cash.

## ENDOWMENT ASSURANCE.

So far we have been dealing mainly with whole-life policies, but as we explained on p. 73, endowment assurance policies are becoming increasingly popular. Many offices now issue as much assurance of this class as of whole-life, and partly on this account and partly because these policies afford the opportunity of getting a clear view of sundry important matters in life assurance, it is worth while giving somewhat detailed attention to their nature and characteristics.

We have already given on p. 29 a short account of how the premiums for endowment assurance may be arrived at, and we will now supplement that description by some further tables. It will be remembered that in the chapter on "Mortality and Interest" we showed how by calculating, at a given rate of interest, the present value of £1 per annum, received at the commencement of each year from the total number of people who, according to the mortality table, would survive, and seeing the present value of the claims that would be incurred on account of people who might be expected to die, and dividing the latter amount by the former, it was possible to ascertain the annual premium for assurance, leaving out of account all question of expenditure and bonus.

We will adopt the same plan in regard to endowment assurances, and in doing so it will become apparent that the premiums for endowment assurances consist of two parts: in the first place, there is the premium required to

pay the claims arising in consequence of the deaths that occur during the endowment period; and in the second place, there is the premium required to pay the sum assured to those who survive to the end of this period. The following table will make the matter clear:—

Table showing Annual Premiums for Term Assurance, Endowments and Endowment Assurance. Age at entry, 30. Amount £100. H <sup>m</sup> Table, 3 per cent.						
Year	Number living at beginning of year	Present Value of £1, due at beginning of year	Present Value of £1 per annum from each survivor	Number of Claims	Present Value of £100 due at end of year	Present Value of Claims paid in year
(1)	(2)	(3) £	(4) £	(5)	(6) £	(7) £
1	89,865	1 000 000	89,865	694	97·0874	67,380
2	89,171	970 874	86 574	706	94·2596	66,547
3	88,465	942 596	83,387	717	91·5142	65,616
4	87,748	915 142	80,302	727	88·8487	64,593
5	87,021	888 487	77,317	740	86·2608	63,833
6	86,281	862 608	74,427	757	83 7484	63,398
7	85,524	837 484	71,625	779	81·3091	63,340
8	84,745	813 091	68,905	802	78·9409	63,311
9	83,943	789 409	66,265	821	76·6416	62,923
10	83,122	766 416	63,706	838	74·4093	62,355
	.....	.....	.....	7,581	....	643,296
	.....	.....	..	82,284	74·4093	6,122,695
	865,885	.....	762,373	89,865	.. ..	6,765,991
Annual Premium for						
Term Assurance . . .				643,296 ÷ 762,373 = 0·84381		
Endowment . . .				6,122,695 ÷ 762,373 = 8·03110		
Endowment Assurance .				6,765,991 ÷ 762,373 = 8·87491		

We take the age at entry to be 30, and we assume the mortality to be in accordance with the H<sup>m</sup> Table given on p. 4. We see from this that out of 89,865 people alive at age 30, 694 die before reaching the age of 31, 706 between

the ages of 31 and 32, and 7,581 between the ages of 30 and 40. If now we take the present value of £1 per annum, paid by each survivor at the beginning of each of the ten years of the endowment period that we illustrate in our table, we find (column 4) that it will amount to £762,373. Ascertaining in a similar way the present value of the 7,581 claims that will arise from death in the course of the ten years, we find from column seven that the amount is £643,296, consequently an annual premium of £1 is more than sufficient to provide for the claims arising from death in the course of the ten years. Dividing the present value of these claims by the present value of the annual premiums of £1 we arrive at £0.843816 or 16s. 11d. as the annual premium required to provide for the death claims. Assurance of this kind that provides for payment only in the event of death within the given period, is called 'Term Assurance, hence the net annual premium at age 30 for term insurance for ten years is 16s. 11d. per £100.

If 7,581 people die in ten years out of 89,865 people alive at the commencement, there must be 82,284 people alive at the end of the ten years, and endowment assurance provides that the sum assured is to be paid to these survivors at the end of the term. Now the present value of £100 due at the end of ten years, reckoning interest at 3 per cent., is £74.41, as may be seen from the table on p. 10. That is to say, £74.41 invested now at 3 per cent. interest will amount to £100 at the end of ten years; therefore the present value of the amounts that will be paid to the survivors is £74.41 multiplied by 82,284, which amounts to £6,122,695. The present value of a premium of £1 per annum is £762,373, hence £6,122,695 divided by 762,373 gives a premium of £8.0311, or £8 0s. 7d., as sufficient to pay the claims of the survivors at the end of the ten years.

**A policy that undertakes to pay a fixed amount at a**

given date if the policy-holder is then alive, undertaking to pay nothing should he die before that date, is called an endowment, so that the premium for an endowment of £100 effected at age 30 for ten years is £8 0s. 7d., again excluding the question of expenses. The combination of term assurance with an endowment constitutes endowment assurance, consequently the net premium for endowment assurance effected at age 30 for ten years is the addition of the premiums for term assurance and for the pure endowment. This amounts to 16s. 11d. plus £8 0s. 7d. = £8 17s. 6d.

The transaction may perhaps be made still more clear by the next table, which shows that 865,885 premiums of £84381, or 16s. 11d. each, amount to £730,642, and if to this is added the interest earned, £27,458, we get £758,100, which exactly suffices to pay the claims of £100 each to the 7,581 people who die during the ten years. The total number of premiums paid, namely, 865,885, is obtained by adding up the number living at the beginning of each year, shown in column two of the preceding table.

Table showing how Premiums specified provide for Policies named.			
ITEMS.	Term Assurance.	Endowment	Endowment Assurance.
Number of Premiums paid .	865,885	865,885	865,885
Amount of each Premium .	£0·84381	£8·03110	£8·87491
Amount of Total Premiums .	£730,642	£6,954,009	£7,684,651
Interest . . . . .	£27,458	£1,274,391	£1,301,849
Premiums plus Interest .	£758,100	£8,228,400	£8,986,500
Amount of Total Claims paid, } £100 each . . . . .	£758,100	£8,228,400	£8,986,500

In the same way it may be seen from the columns headed "Endowment," that the premiums of £8·0311, or



£8 0s. 7d. each, together with the interest £1,274,391, exactly suffice to pay £100 apiece to the 82,284 people who survive the ten years. The last column, headed "Endowment Assurance," shows the addition of the figures of the two previous columns and makes it clear that the addition of the premiums for term assurance and for endowment together constitute the premiums for endowment assurance, and together with the interest suffice to pay £100 apiece at some time or other to the 89,865 people or their heirs, who were concerned in the transaction at the commencement.

So much for the explanation of the nature of endowment assurance from its theoretical side. Turning now to the more practical aspect of the matter, we see that tontine policies, and policies subject to only a limited number of premiums, form, as it were, two connecting links between whole-life and endowment assurance. Tontine policies usually carry the option of terminating the transaction at the end of the tontine period. The policy-holder may cease the payment of premiums and take the value of the policy in cash; but the cash value of a life policy at the end of the tontine period, even with the bonuses added, is usually less than its face value. The cash value of a tontine policy for £1,000, commenced at age thirty at a premium of £24 a year, would be unlikely to exceed £500 at the end of twenty years, whereas an endowment assurance policy for £1,000, the premium on which would be about £50 per annum, might not improbably amount with the bonuses to £1,500 at the end of twenty years. This makes it apparent that if it can be determined beforehand that the cash should be received at a given period provided the policy-holder is living, endowment assurance yields a better return for every pound paid in premium than does whole-life assurance even on the tontine plan.

An approximate idea of the amount on surrender at end of twenty years, payable under whole-life policies with tontine bonuses and under endowment assurance policies maturing in twenty years—both effected at a premium of £100 a year—may be gathered from the following table, which includes bonuses in both cases.

Table showing approximate average amounts of Whole-Life and Endowment Assurances effected at a premium of £100 a year. With Profits.				
Age at Entry.	Whole Life		Endowment Assurances.	
	At Death in First Year	On Surrender in 20 Years	At Death in First Year.	At Maturity in 20 Years.
20	£ 5,530	£ 2,024	£ 2,078	£ 3,005
30	4,293	2,121	2,017	2,990
40	3,105	2,226	1,888	2,929
50	2,062	2,334	1,613	2,866

It will be seen that the sum assured, in the event of death during the twenty years, is larger under the whole life policies, and the amount payable to those who survive the term is larger under endowment assurance policies. There are many circumstances under which the larger amount, payable on survivance, may prove the greater attraction. It constantly happens that after, say, twenty years, the chief liabilities for which it is necessary to provide have partially or wholly ceased to exist, in consequence of children having grown up and being able to provide for themselves. Under an endowment assurance policy financial relief comes to a man, not merely through the payment to him of the sum assured under the policy, but by the cessation of the premiums which under an ordinary whole-life policy would have to be continued until death. This cessation of premiums may, of course, be

provided for by taking a whole-life policy subjected to only a limited number of premiums.

In the choice of an endowment assurance policy many of the same points occur as in the choice of whole-life assurance. With endowment assurance, as with whole-life, the assured may or may not participate in the profits, and as before, it is almost invariably advisable to select a participating policy. The policy-holder must next decide whether he will pay the ordinary tabular rate, or whether he will pay reduced premiums for five years and an increased premium for the rest of the term; this has even less to recommend it in the case of endowment assurance than in the case of whole-life policies. If he decides on a policy that participates in the profits at frequent intervals, he may adopt the discounted bonus system described on page 77, and by anticipating the bonuses and applying them in reduction of premium, appreciably lessen the amount that he has to pay. Although the reduction so brought about does not bring the premium to so small an amount as the ordinary rates for whole-life assurance, it may yet enable a man with limited means to take an endowment assurance policy when otherwise the high rate of premium might make such a policy scarcely feasible.

The same considerations in regard to deferring bonuses or taking them at frequent intervals apply in the main to endowment assurance as to whole-life policies; there are, however, certain minor differences in regard to bonuses which are well worth consideration. There is at present a considerable diversity of practice among assurance companies in regard to the allotment of bonuses to endowment assurance policies. Some offices give the same reversionary bonus to both whole-life and endowment assurances; other offices give bonuses that are of the same cash value, the reversionary bonus being greater on whole-life policies.

Another point in connection with bonuses is that if an endowment assurance policy matures between two valuations, the bonus for the years from the date of valuation to the maturity of the policy is at a lower rate than if the policy became payable immediately after the declaration of a bonus; thus a policy maturing, say, in 1896, in an office whose valuations were made on December 31st, 1891, and December 31st, 1896, might receive a bonus for the last four years at the rate of only £1 per cent. per annum; while, if the policy matured just after the valuation of December 31st, 1896, it would receive the full valuation bonus of £2 per cent. per annum. This might make a difference of as much as £40 on a £1,000 policy, simply because it matured on December 31st, 1896, instead of on January 1st, 1897. This is an extreme case, but it illustrates the principle which has hitherto been pretty generally adopted, although in recent years a few offices have recognised its injustice and have given bonuses at the full rate to endowment assurances that arrive at maturity between two valuations; this juster practice is likely to become universal.

Another matter to which policy-holders should pay attention is the number of premiums payable under a policy maturing at a given age; thus, a man aged thirty taking endowment assurance maturing at age sixty, pays thirty annual premiums in most offices, but in some he may have to pay thirty-one. For instance, a man who is thirty in March, 1897, takes a policy in October, 1896, payable at age sixty or previous death; by October, 1925 he will have paid thirty premiums, by October, 1926, his policy will have been in force thirty complete years, but he will not be sixty years of age until March, 1927. Some offices would require him to pay a thirty-first premium in October, 1926, and would not pay the sum assured under the policy

till his sixtieth birthday in March, 1927; other offices would pay the policy in March, 1927, but would not require a premium to be paid in October, 1926, while yet other offices would pay the sum assured in October, 1926, on the thirtieth anniversary of the issue of the policy, and would only require the payment of thirty premiums in all. While a diversity of practice exists in regard to these matters at present, there is a tendency to require the payment of only thirty premiums in such a case, and to pay the policy on the anniversary of its issue without waiting for the birthday of the policy-holder.

These are details to which an intending assurer should pay attention, since the difference, especially under policies for short terms, such as ten or fifteen years, is proportionately large; and when the end of the term is drawing near considerable dissatisfaction might be felt if an unlooked-for demand were made for an extra premium, or if an unexpected delay occurred in the payment of the policy. Such questions as these do not arise when the endowment assurance matures after a fixed number of years instead of at a given age; and this method of dealing with the matter is becoming increasingly popular.

Some assurance companies do not possess the power under their deeds of settlement or articles of association to issue endowment assurances that participate in profits, and consequently they sometimes put forward endowment assurance schemes, in which bonuses of a certain fixed amount are definitely guaranteed; these, of course, are really non-participating policies, inasmuch as the addition of bonus would not vary with the prosperity of the office. In calculating the cost of such bonuses the company must necessarily guard itself against loss in the same way as in calculating the premiums for ordinary non-participating assurance; hence for the same reasons that in a good

company participation in profits is preferable to non-participation, so participation in profits is normally preferable to a guaranteed bonus.

An approximate idea of the relative premiums charged for endowment assurance, both with and without profits, may be gathered from the following table of premium rates, which are the average of premiums charged by a large number of offices.

Annual Premiums for Endowment Assurance for £100.			
Age at Entry	Years till Maturity	With Profits	Without Profits.
		£ s. d.	£ s. d.
25	20	5 1 6	4 7 3
	25	3 18 6	3 8 0
	30	3 4 10	2 16 7
	35	2 16 5	2 8 10
	40	2 10 11	2 9 11
30	20	4 19 0	4 8 10
	25	3 13 10	3 10 6
	30	3 7 4	2 18 11
	35	2 19 4	2 11 7
35	15	6 18 0	6 2 3
	20	5 2 5	4 11 1
	25	4 2 7	3 12 11
	30	3 10 9	3 2 0
40	10	10 12 11	9 11 4
	15	7 0 1	6 5 11
	20	5 5 9	4 14 2
	25	4 6 10	3 16 9
45	10	10 14 6	9 16 1
	15	7 4 3	6 9 7
	20	5 11 3	4 18 10
50	10	11 0 2	9 18 8
	15	7 9 10	6 15 0

The table, in conjunction with the explanations that have already been given, will be readily understood.

## TERM ASSURANCE.

In explaining the nature of endowment assurance on pp. 97-100, we described the characteristics of term assurance; we there showed that it provided simply for the payment of the sum assured in case of death during a given term. In this way assurance protection may be obtained for a few years at a minimum cost, and were it certain that the necessity for assurance protection would have passed away by the end of the term this class of policy, on account of its small cost, would have much to recommend it. The circumstances are, however, exceptional in which this is the case, although they do sometimes occur, and term assurance may then be taken with great advantage.

If, however, when the term comes to an end the need for the protection of assurance still exists, the policy-holder must not only pay a higher premium on account of his increased age, but must also undergo a fresh medical examination, and deterioration in health might even make it impossible to obtain life assurance at all. These two difficulties are sometimes met by a system called renewable term assurance—a premium is charged that is larger from the outset than is required for a fixed term of a few years; and for this extra premium the policy-holder acquires the right to take at any time within an agreed period a whole-life or endowment assurance policy at the ordinary premium charged for the age at which the change is made. In this way assurance protection is obtained from the outset at a small cost, but if the change is not made until a somewhat advanced age is reached, the premium ultimately is apt to become inconveniently high; hence this system, though convenient in certain cases, is normally much less advantageous for a policy-holder than the taking of a whole life or endowment assurance policy at the commencement.

## NATURAL PREMIUM AND ASSESSMENT ASSURANCE.

Renewable term assurance is a natural introduction to the consideration of two systems of so-called assurance, which seem to present certain attractions to the uninitiated, but which must be unequivocally condemned by any capable person giving adequate consideration to the subject. In discussing various kinds of assurance we have hitherto avoided any strong expression of opinion for or against the different systems considered, because they all present certain advantages and are suitable under various circumstances. We feel compelled, however, to say in the most definite manner that natural premium and assessment assurance are thoroughly and entirely unsatisfactory. Any advantages that they seem to offer can invariably be better attained by other means, and anybody to whom these kinds of policies are offered should at once decline to have anything to do with them.

A reference to pages 24 and 25 will show the natural premium for the assurance of £100 for one year. The figures there given exclude any addition for expenses, being simply the natural premium by the *H<sup>m</sup>* table at 3 per cent. interest. It will be seen from this table that the natural premium—

At age 20 is	·6115	At age 60 is	2·8814
" " 30 "	·7498	" " 70 "	6·0380
" " 40 "	1·0006	" " 80 "	14·0439
" " 50 "	1·5485	" " 90 "	27·1313

**This is the premium for the assurance of a healthy life for one year on the basis mentioned, and if assurance were**



worked on the principle of charging an increasing premium every year, and requiring each year satisfactory proof of health, the system might be financially sound. From the policy-holder's point of view this would usually be objectionable on account of the increasing premium, and it would invariably be objectionable on account of the possibility which might occur at any time of ill-health preventing the continuance of the assurance when it was most needed. This latter objection might be got over by charging a higher premium than would be necessary to cover year by year the cost of the natural premium for healthy lives and the expenses of management, and leave the system only open to the objection of prohibitively high premiums at the later ages.

The system so worked would be less satisfactory than "renewable term assurance," which ordinarily carries the right to change at any time within certain limits of age to whole-life or endowment assurance as previously explained ; but natural premium or assessment assurance is advocated by a few companies who confine themselves chiefly, if not entirely, to this class of business without offering the option of changing the nature of the policy. In doing so, however, they fail to make a practice of increasing the premiums from year to year, and people who take their policies frequently suppose that the premium throughout the entire duration of the policy will remain the same as for the age of entry. In actual practice the premium does remain constant for some few years, but is liable to be increased at any time the assessment company thinks fit. That is to say the policy-holders are assessed according to the experience of the company from time to time. This leads to injustice in very many ways ; the policy-holders who die soon pay too little, and the policy-holders who live long pay too much. Besides this

there is the fatal weakness that a company working on these lines can only continue to exist so long as a large number of policy-holders are content to pay whatever premium is demanded from them, or so long as a constant succession of new policy-holders in increasingly large proportions is to be found willing to join. The mortality among new policy-holders who have recently passed medical examination is very light, consequently their premiums not being required to pay their own death claims, are available for the payment of the death claims of policy-holders of older standing. In this way each batch of policy-holders supplies the means of paying the claims of their predecessors, and must look for the payment of their own claims to the contributions of their successors. It is thus apparent that companies of this sort possess no element of stability, and as a matter of fact, although the system has been tried with various modifications, for very many years past, there is no single instance of any such company having lasted for any great length of time.

For the most part they make a point of not accumulating funds, and when the time comes, as it invariably does, that the premiums have to be increased, there is a general exodus of the healthy lives, who can get assurance elsewhere, with the result that the inferior lives remain on, consequently making the mortality experience exceptionally heavy, so involving further increase in the assessment, further exodus of the least unhealthy lives, further increase in the mortality, and so on continually, till the company ceases to exist.

It must be obvious to the meanest intelligence that if this system had anything whatever to recommend it, established life offices in the possession of ample resources for meeting any demands that were made upon them would be only too ready to include it among the multitudinous

schemes that they offer to the public ; there is no instance of this being done.

An ordinary life office wishing to discontinue its business could at any moment cease to accept new policy-holders, and meet all claims that would be made upon it with unfailing regularity at maturity. An assessment company would be utterly unable to do anything of the sort. The amount of premium it would require from the policy-holders who desired to remain in it till death would be so exorbitantly high that the policy-holders would be compelled in self defence to throw up their policies altogether. There is no question that the system is bad, and no heed should be paid to suggestions to take a policy of this sort.

## ENDOWMENTS.

In the chapter on endowment assurance we briefly explained the nature of an endowment; it is an arrangement to pay an agreed amount on a fixed date, provided the policy-holder be then living, nothing being paid should he die before the endowment becomes due.

The most frequent application of this kind of business is in connection with endowments for children. The premium commences when the child is young, and the endowment is payable on attaining some such age as fourteen, eighteen, twenty-one, or twenty-five. The object is to provide the means for education, for starting a young man in business, or for giving a girl a sum of money at about the time she would be likely to marry. There are, of course, other applications of the system, but these are the most frequent. In the case of children it is fitting that no financial benefit should result from their death, inasmuch as no financial loss is incurred by their death, consequently it is frequently arranged that in the event of death before the endowment becomes due, no payment whatever is made by the assurance company; sometimes, however, a higher premium is charged for the endowment, and in the event of death before maturity, it is provided that all the premiums paid shall be returned, sometimes without interest, and sometimes with interest at quite a low rate, such as 2 per cent. Some idea of the cost of children's endowments, with and without the return of premiums, may be gathered from the following table:—

Annual Premiums for Children's Endowments of £100.			
Age at Entry.	Age at Maturity.	Premiums Returnable.	Premiums Non-returnable.
1	14	£ s. d. 6 6 6	£ s. d. 5 12 5
	18	4 9 11	4 2 3
	21	3 12 6	3 5 0
3	14	7 15 3	7 1 1
	18	5 6 0	4 19 7
	21	4 3 9	3 16 8
5	14	9 15 9	9 0 8
	18	6 7 2	6 1 1
	21	4 17 10	4 10 7
7	14	12 15 0	11 15 1
	18	7 15 11	7 9 11
	21	5 14 7	5 8 3
9	14	18 6 8	17 14 11
	18	9 15 1	9 9 9
	21	7 1 3	6 11 9
11	18	13 3 2	12 12 1
	21	8 13 2	8 4 1
13	18	18 14 10	18 4 10
	21	10 19 6	10 11 7

The premiums for endowments are sometimes arranged to cease at the death of the parent, the endowment being paid when the child reaches the agreed age. There are various other plans under which children may be assured ; the most common takes the child without medical examination, pays nothing in the event of death before 21, and after that the policy becomes an ordinary whole-life or endowment assurance, subject to a very low premium in consequence of the early age at which it was taken out.

## LEASEHOLD OR FIXED TERM ASSURANCE.

Somewhat akin to endowments is a policy that provides for the payment of an agreed amount at a fixed date entirely irrespective of the death or survivance of any individual. As an example, we may take the case of a man who has invested money in leasehold property. The lease will expire, let us say, in forty years, at the end of which time no further income will be forthcoming from the investment, and no part of the capital invested will be returned. The rent from the leasehold property would, of course, yield a higher interest upon the purchase price than if the property were freehold, and by devoting a part or all of the difference between the returns from leasehold and freehold property to the payment of a premium on a fixed-term policy, the investor may, when the lease expires, receive from the assurance company the amount of the capital invested in the purchase of the leasehold property.

We may illustrate this by a concrete example. Suppose a man invested a thousand pounds in a lease that has forty years to run, expecting to realise from it an income of  $5\frac{1}{4}$  per cent. If he received and spent the entire return throughout the forty years, he would at the end of the time be without his capital of £1,000, but if he devoted  $1\frac{1}{4}$  per cent., or £12 10s. a year, to pay the premium on leasehold insurance for £1,000 payable at the end of forty years, he would receive a net return ~~at~~  $4\frac{1}{4}$  per cent. upon his money, and at the expiration of his

lease receive from the insurance company £1,000, that would replace the money originally invested, thus giving him a clear return of 4 per cent. without diminishing his capital. The £1,000 would be paid by the life office at the end of forty years to the policy-holder, or to his estate, without any reference to death or survivance. Of course in such a case no medical examination is required before the policy is issued.

## MISCELLANEOUS POLICIES.

. We have discussed assurance under which the sum assured is payable at death; we have seen that the premiums for such policies may be payable for life or for a limited number of years; we have considered endowment assurance under which the sum assured is payable at a fixed date or at death if previous; we have analysed term assurance, which provides only for payment at death within an agreed period, and endowments, which provide for payment only in the event of surviving to an agreed date. In considering participation in profits we have seen that they may increase the sum assured, reduce the premiums payable, or be received in cash, and though there are a great variety of policies advertised by different companies at the present time, they are all variations or combinations of some of these plans. Most of them, however, have something to recommend them in individual cases, and though adequate consideration of the matter for the most part leads to the adoption of some simple application of assurance principles, the more complicated policies attract a certain amount of attention, and need to be briefly noticed. There are, for instance, double endowment assurances which provide for £100 to be paid if the assured die before the maturity of the endowment, while £200 is paid if the assured live to maturity. Such policies are granted to persons whose health is not sufficiently good to justify the issue of an ordinary policy, the premium being comparatively high when regarded as assuring only £100, though moderate for the assurance of £200. Somewhat akin to



these are policies which, while definitely assuring a given amount at the end of a specified term, provide only for the return of the premiums should death occur before the date fixed for payment. On the other hand, endowment assurances are sometimes issued under which £200 is payable in the event of death before maturity of the endowment, and only £100 is payable if the assured survive the endowment period. Yet another variation is to be found in the system which grants £100 at the end of the endowment period and grants also £100 at death, whether it occurs before or after the maturity of the endowment—that is to say, if a man takes such a policy with a twenty-year endowment period, he is paid only £100 if he dies within the twenty years, but if he survives for twenty years he is then paid £100, and the company guarantees his estate a further £100 whenever death occurs.

Another combination of whole-life and endowment assurance is occasionally put forward, which provides that one quarter of the sum assured shall be payable say at fifty, other quarters payable at ages fifty-five and sixty and the remaining quarter at death.

In order to meet the convenience of policy-holders who are unable to determine at the outset whether they require a whole-life or an endowment assurance policy, the option is sometimes given of paying for the first five years a premium slightly in excess of the ordinary whole-life rate, which may be continued from the sixth year onwards as a whole-life policy at the same premium, or may be changed to an endowment assurance policy at a lower premium than for the attained age of the assured at the time of making his choice.

But it becomes tedious to catalogue the various ways in which the few simple principles of the leading policies can be combined. Except in special circumstances a policy

holder does better to assure on some extensively adopted plan, rather than upon some complicated combination. After all, these combination policies are only equivalent to two or three different policies of a simpler sort, and regarded in this way it is improbable that any man would think it worth while to take out a series of separate policies, in order to accomplish the object which a combination policy serves. Such combinations sometimes have the advantage of attracting attention and exciting inquiry, and life offices deserve credit for the ingenuity displayed in endeavouring to meet all conceivable wants; but while recognising this, it must nevertheless be admitted that policies on generally adopted plans are usually the more advantageous.

The policies so far discussed have contemplated only contingencies of living and dying, but the difficulty of feeling sure that the payment of premiums can be maintained is one that must frequently strike many policy-holders who depend for their income upon the maintenance of health. To meet this contingency a combination of sickness assurance and life assurance is sometimes put forward. This involves the payment of a higher premium than is required merely for life assurance, but carries the provision that the payment of premium shall cease in the event of the policy-holder becoming incapacitated, either by accident or bodily or mental disorder, from continuing to earn his livelihood. This provision is temporary if the disablement is temporary, and permanent if the disablement is permanent. Considering, however, that the liability to incapacity becomes excessively high after reaching some such age as sixty-five, a premium is charged that ceases under any circumstances on attaining such an age. It is ~~in fact~~ that a policy might be taken in a sickness assurance ~~policy~~ that would provide an amount sufficient to pay

the life premiums in the event of illness or disablement, but there are certain conveniences in having the two things combined in one policy. This book, however, does not profess to deal with sickness and accident insurance, and a short mention of this convenient combination must suffice.

## JOINT LIFE ASSURANCE.

Up to the present the policies we have been considering have been concerned with only one life, but it frequently happens that two or more people may be so connected that assurance which depends upon the lives of more than one person may be advantageously taken. A common instance of this is to be found in partnerships, where on the death of one partner it is desirable for the remaining partners to pay out the share of the capital owned by the deceased member of the firm. This might frequently be inconvenient to do, and a policy that provides the necessary amount at the death of the first of the partners who dies would be found advantageous. Before considering the terms upon which assurance companies grant such policies, it may be well to see how the premiums to be charged for them may be arrived at.

In order to show this clearly, let us suppose that there are ten pairs of partners, and that five of the older partners and two of the younger may be expected to die within one year. Obviously the deaths of the five older ones will reduce the number of pairs of partners from ten to five, but it cannot be said that the deaths of the two younger ones will further reduce the number of pairs remaining alive from five to three. It is probable that one out of the two younger partners who die was in partnership with one of the five older ones who died, and that the other junior partner whose death occurred was associated with one of the five senior partners who survived. Probably, therefore, the number of pairs of partners, of whom at least one partner would die, would be six, leaving four pairs of partners alive. We may regard it in another

way, and think of those who survive rather than of those who die. We saw that  $\frac{6}{10}$  of the junior partners and  $\frac{5}{10}$  of the senior partners are likely to survive, and multiplying these two fractions together we have  $\frac{40}{100}$  pairs of partners who survive. In other words, four pairs of partners out of ten, which is the same result as before. This is a very simple illustration, in which a rate of mortality is assumed greater than is likely to occur in actual practice, but it shows that multiplying together the probability of surviving at each of the two ages, gives us the probability of survivance of a pair of partners. By taking the mortality table for individual lives, and combining in this way the results so obtained, we can make if we choose a fresh table for pairs of lives, instead of for individuals. Such a table for ten years is given below for partners aged respectively thirty and sixty, at the time they came under observation.

Table showing probable duration of pairs of lives.					
Younger Life		Elder Life		Pairs of Lives.	
Age.	Probable number out of every 100 who survive the year.	Age.	Probable number out of every 100 who survive the year	Probable number out of every 100 who survive the year.	Number of pairs living at beginning of each year.
(1)	(2)	(3)	(4)	(5)	(6)
30	99·2277	60	97·0822	96·283	10,000
31	99·2083	61	96·7962	96·030	9,628
32	99·1895	62	96·5364	95·754	9,246
33	99·1715	63	96·2510	95·454	8,853
34	99·1496	64	95·9590	95·143	8,451
35	99·1226	65	95·6569	94·818	8,040
36	99·0891	66	95·3431	94·475	7,624
37	99·0536	67	95·0111	94·112	7,203
38	99·0220	68	94·6766	93·751	6,778
39	98·9918	69	94·2660	93·316	6,355
40	—	70	—	—	5,930

The probable number of individuals who will survive out of every hundred at each age is given in column four on pages 4 and 5, and by multiplying together the fractions obtained by putting these numbers as numerators and 100 as denominators, we obtain the probability that a pair of partners of these ages will survive one year.

The first column gives the age of the younger life and the third column the age of the elder life, and the details given in columns 5 and 6 refer to pairs of lives of the ages given in columns 1 and 3. Columns 2 and 4 are copied from the mortality table on pp. 4 and 5. In column 5 we have the probable number out of every 100 pairs of lives who survive the year. This is obtained for ages thirty and sixty by multiplying  $\frac{99.2277}{100} \times \frac{97.0322}{100}$  which equals  $\frac{9628.3}{10,000}$  as the probability for each pair, or 96.283 pairs per 100. The details for other years are obtained in the same way. The last column gives the number living at the beginning of each year out of every 10,000 pairs alive at the commencement. This corresponds to column 2 of the mortality table on pp. 4 and 5. By multiplying the number living at one pair of ages by the probability of surviving one year we obtain the number living at the commencement of the next age. Thus:—

$$10,000 \times \frac{96.283}{100} = 9,628$$

$$9,628 \times \frac{96.03}{100} = 9,246.$$

and so on throughout.

With this information available we can ascertain the premium to be charged for assurance payable at the death of the first partner in precisely the same way as we calculated the premiums for endowment assurance on p. 97. If the above table were continued till all the pairs of

partners as such had ceased to exist, we could determine the premiums for whole-life assurance and annuities in the same way as we did on pages 15 to 23.

An examination of the above results will show what is readily obvious, that the cost of assuring a payment on the first death of one of two partners is greater than the cost of assuring the life of either partner separately. It is apparent that one partner may die before the other, and that therefore the risk is greater than if only one life were concerned. At the same time the premium is much less than if each of the partners were assured for the same amount as the pair. The average rate charged by assurance companies for the assurance of £100, without participation in profits, at the first death occurring among two partners of various ages, is shown in the next table, and a comparison with the rates for non-participating whole life assurance, given on page 37, will show the relative cost of partnership assurance and of the assurance of individual lives.

Annual Premiums for Assurance of £100, payable at the Death of the First of Two Lives, without Profits.,							
Age at entry of one Life.	Age at entry of other Life.						
	20	25	30	35	40	50	60
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
20	2 12 9	2 15 9	3 0 0	3 5 4	3 12 10	4 16 3	7 1 11
25	2 15 9	2 18 7	3 1 6	3 7 9	3 14 10	4 17 10	7 3 2
30	3 0 0	3 1 6	3 6 4	3 11 11	3 18 0	5 10 5	7 5 7
35	3 5 4	3 7 9	3 11 11	3 15 8	4 1 11	5 3 5	7 7 10
40	3 12 10	3 14 10	3 18 0	4 1 11	4 7 11	5 8 3	7 11 10
45	4 2 7	4 4 5	4 7 2	4 11 1	4 16 2	5 14 8	7 16 10
50	4 16 3	4 17 10	5 10 5	5 3 5	5 8 3	6 5 4	8 6 0
55	5 15 5	5 16 11	5 19 1	5 15 9	6 6 1	7 7 1	8 13 7
60	7 1 11	7 3 2	7 5 7	7 7 10	7 11 10	7 16 10	10 2 0

The same principle may be applied to groups of partners greater than two. The probabilities of survivance of the individual partners being multiplied into one another, in order to get the probability of the survivance of pairs or groups of partners.

Although we have only quoted the rates for non-participating joint life assurance, many companies grant policies of this sort with participation in profits, of course at an increased premium.

While joint life assurance of this kind may frequently be taken with advantage, it is always worth considering whether it is not more beneficial for each of the two partners to be separately assured. Something depends upon the relative ages of the lives concerned, but the assurance of £1,000 each does not in some cases come to a much higher annual premium than the assurance of £1,000 on the death of the first life. The reason of this is that the premium on the younger life would probably have to be paid for a longer time than the premium on the joint lives.

#### SURVIVORSHIP ASSURANCE.

While circumstances may sometimes be such as to make the payment of the sum assured desirable at the first death out of two, it may sometimes be convenient to arrange for assurance that shall be payable at the death of the last survivor. In the case, for instance, of sisters being adequately provided for so long as either of two brothers is living, and unprovided for should they both die, survivorship assurance would be a convenient arrangement; the average non-participating rates for such a case are shown in the next table.



Annual Premiums for Assurance of £100, payable at the Death of the Last Survivor of Two Lives. Without Profits.								
Age at entry of one Life	Age at entry of other Life.							
	20	25	30	35	40	50	60	
	£ s d	£ s d	£ s. d.	£ s d	£ s d	£ s. d	£ s. d	£ s. d
20	1 0 2	1 1 5	1 2 10	1 4 2	1 5 7	1 8 3	1 10 8	
25	1 1 5	1 3 1	1 4 9	1 6 6	1 8 2	1 11 4	1 14 2	
30	1 2 10	1 4 9	1 6 10	1 8 11	1 11 1	1 15 1	1 18 8	
35	1 4 2	1 6 6	1 8 11	1 11 5	1 14 1	1 18 6	2 3 10	
40	1 5 7	1 8 2	1 11 1	1 14 1	1 17 6	2 4 5	2 10 3	
45	1 6 11	1 9 10	1 13 8	1 16 2	2 0 11	2 9 8	2 17 11	
50	1 8 3	1 11 4	1 15 1	1 18 6	2 4 5	2 15 9	3 6 11	
55	1 9 6	1 12 11	1 16 10	2 1 9	2 7 5	3 1 4	3 16 9	
60	1 10 8	1 14 2	1 18 8	2 3 10	2 10 3	2 17 11	4 8 4	

It will be noticed that the premiums for assurance payable at the death of the last survivor are much less than for assurance of the same amount payable at the first death of two lives.

These policies also are granted by some companies with participation in profits.

### CONTINGENT SURVIVORSHIP.

There are yet other circumstances which may be economically provided for by *contingent* survivorship. Suppose a husband is in receipt of a pension, or has only a life interest in some estate, and that at the husband's death the widow would be unprovided for; it is possible for him to take a policy at a low premium that will secure a payment to his wife at his death, but would stipulate that no payment at all should be made if the wife died before the husband. The premiums in such a case would cease if either the husband or wife were to die. It will be

seen from the annexed table of average premiums for this kind of policy that the rates charged are very moderate.

Annual Premiums for Assurance of £100, payable on the death of A provided he die before B, both A and B being males. Without Profits.							
Age at entry of Life A	Age at entry of Life B.						
	20	25	30	35	40	50	60
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
20	1 8 0	1 6 9	1 5 9	1 4 5	1 3 7	1 1 7	1 0 1
25	—	1 10 11	1 9 8	1 8 3	1 6 10	1 4 4	1 2 4
30	—	—	1 15 4	1 13 4	1 11 11	1 8 7	1 6 0
35	—	—	—	1 19 6	1 17 7	1 13 1	1 8 6
40	—	—	—	—	2 6 5	2 0 9	1 15 8
45	—	—	—	—	—	2 10 2	2 3 1
50	—	—	—	—	—	3 5 3	2 16 1
55	—	—	—	—	—	—	3 15 0
60	—	—	—	—	—	—	5 3 10

In most cases no provision is made for the return of the premiums should the wife die before the husband, the chance of the wife receiving the sum assured in the event of her surviving her husband being the value that has been received for the payments made. These policies are usually, if not invariably, granted without participation in profits.

## ANNUITIES.

Before passing to practical information as to how assurance may be effected and the conditions applying to policies, we may consider the question of annuities, to which reference has already been made on pages 21-26.

### IMMEDIATE ANNUITIES.

Immediate annuities are purchased by the payment of a lump sum, in return for which the assurance company grants a fixed income for the remainder of life. In the case of a person who desires to obtain as large an income as possible, and whose circumstances are such that there is no occasion to leave capital at death for the benefit of others, an annuity is a satisfactory means of obtaining an increased income. Whether the annuitant lives for few years or many, the assurance company pays the annuity till death. By their very nature annuities do not participate in profits. The amount is definitely fixed from the outset, for if bonuses on annuities could be declared at all, they should be given to those who die soon, but not to those who live long, and as it is not possible to determine beforehand which individuals will live long and which will die soon, annuities cannot be granted on the participating system.

\*In some senses annuities are the opposite of life assurance. The estate of the annuitant would suffer by early death, while the estate of the assured would gain by it, but on the other hand annuities are an admirable system of assurance, inasmuch as a relatively large income is defin-

itely assured for life. Annuities are usually payable half-yearly, and the average rates granted by British offices for each £100 paid is shown in the following table.

Average Rates for Immediate Annuities granted for each £100 of Purchase Money. Annual amount, payable in half yearly instalments.						
Age last birthday	Males.			Females.		
	£	s.	d.	£	s.	d.
40	6	1	7	5	11	6
45	6	11	2	6	0	0
50	7	3	3	6	11	2
55	7	19	3	7	6	0
60	9	3	2	8	6	7
65	10	15	5	9	15	5
70	12	18	2	11	16	5

If the annuities are payable yearly, the amount is slightly higher, if payable quarterly, somewhat less.

It will be noticed from the above table that the annuities to females are less than to males; but the premiums for the assurance of female lives are more than the premiums for the assurance of male lives. At first sight this seems unfair, but it is strictly in accordance with the experience of mortality of the two sexes. A comparison is given below of the probable average duration of life and of the probabilities of living over one year, deduced from the Healthy Males and Healthy Females Tables published by the Institute of Actuaries.

Table showing for Males and for Females the Average Duration of Life and the Probabilities of Living over one year.

Age.	Average Duration of Life.		Probabilities of Living over One Year.	
	Males.	Females.	Males	Females.
20	42·061	40·815	·993671	·993122
25	38·405	37·409	·993370	·989186
30	34·681	34·503	·992277	·988150
35	31·016	31·445	·991226	·988240
40	27·399	28·253	·989694	·987453
45	23·792	24·987	·987808	·986382
50	20·306	21·616	·981050	·985547
55	16·962	18·192	·978967	·981732
60	13·830	14·851	·970322	·976319
65	11·012	11·772	·956569	·962623
70	8·495	9·082	·937808	·944357
75	6·376	6·925	·901639	·905146
80	4·719	5·450	·855348	·878214
85	3·511	3·813	·790115	·814363
90	2·357	3·302	·720548	·724960

From this it will be seen that at age twenty the male duration of life is greater than the female, at age thirty it is approximately the same, although the probability of a male surviving the year is greater than that of a female; at age forty, the probable duration of life is greater for women than for men, though the likelihood of living for a year is less; at age fifty, and at all subsequent ages, both probabilities are in favour of female lives. This means that if women survive a certain age their duration of life is likely to be longer than that of men; consequently, an insurance company would have to pay female annuitants of a given age for a longer time than they would have to pay males of the same age. Therefore, they are

only able to grant a smaller annuity for the same amount of consideration ; but in the case of life assurance policies the probability of death at most ages at which assurances would be effected is greater in the case of women than in the case of men, and consequently it is necessary that women should be charged a higher premium.

### DEFERRED ANNUITIES.

We have said above that annuities are the antithesis of life assurance, and as applied to immediate annuities this is true, but it is scarcely true of the plan of purchasing an annuity, the payment of which does not commence until the expiration of a fixed number of years. This is called a deferred annuity, and may be purchased either by a single payment or by annual premiums.

If a woman aged thirty is earning her own living, and is able to annually set aside some amount as provision for old age, she may pay the amount of her savings to an assurance company and be guaranteed by it the receipt of an annuity commencing at any age she may select, and continuing till death. In the event of her dying before reaching the commencing age the premiums paid to the assurance company are not returned. This of course enables the company to grant a higher annuity than if the payments made had to be refunded, but many women have no one dependent upon them, and are fully entitled to obtain the fullest benefit they can for their old age.

It will be seen that deferred annuities are very similar to endowment policies, described on page 111, the only difference being, that in the case of the deferred annuity an income is guaranteed, and in the case of the endowment a lump sum of money is assured. The annual premiums on deferred annuities may be paid yearly, half-yearly, quarterly, or in some cases monthly, and they usually

continue up to the time at which the first payment of the annuity falls due. It can also be arranged that they should be paid for by five, ten, fifteen, or twenty annual premiums, in the same way as premiums on whole-life policies may be paid, as described on page 86.

### JOINT LIFE ANNUITIES.

There are some circumstances in which it may be desirable to provide an income so long only as two or more people are all alive. The principle upon which the cost of such a provision may be determined has already been explained on pp. 119-122. Joint life annuities provide that as long as both the two (or more) persons concerned are alive, the annuity shall be paid to them, but that on the death of one the annuity shall cease. Such annuities are not often required, but in Actuarial Tables they are frequently given as a convenient means of arriving at the premium to be charged for joint life assurance, in consequence of the connection between life assurance premiums and annuities, which was described on page 26.

### SURVIVORSHIP ANNUITIES.

A system that is much more frequently advantageous is that which provides for the payment of an annuity during the continuance of either of two lives. Thus, a man and his wife having no one dependent upon them may advantageously invest their capital in a survivorship annuity, so providing for a fixed income so long as either the one or the other is alive. The rates for annuities of this sort can be obtained from assurance companies on application. Some idea of the probable cost of an annuity of £100 at various ages, assuming both annuitants to be males, may be obtained from the following table, which gives the value of the annuity by the H<sup>m</sup>. Table, with interest at  $3\frac{1}{2}\%$  without any addition for expenses.

Table showing cost of an Annuity of £100 payable during the life of both or either of two male lives.						
Age of one Life.	Age of other Life.					
	20	30	40	50	60	70
20	£ 2,319	£ 2,247	£ 2,180	£ 2,122	£ 2,077	£ 2,048
30	2,247	2,148	2,053	1,973	1,912	1,873
40	2,180	2,053	1,921	1,801	1,710	1,654
50	2,122	1,973	1,801	1,626	1,483	1,390
60	2,077	1,912	1,710	1,483	1,269	1,113
70	2,048	1,873	1,654	1,390	1,113	880

Inasmuch as the rate of interest earned by assurance companies exceeds  $3\frac{1}{2}\%$ , and as the expenses connected with annuities are small, the prices for annuities as given above are not far off what assurance companies would be likely to charge.

### SECURITY FOR ANNUITIES.

In nearly all cases where annuities are purchased it is of supreme importance that there should be no doubt as to the complete security for the payment. If the office from which the annuity is purchased is wisely chosen, the most complete confidence may be felt that the annuity will be punctually paid. Over and above the fact that most British offices are completely sound and solvent, annuitants are in certain respects in a better position than participating policy-holders. In the event of a company proving unsuccessful in its working the bonuses of participating policy-holders would be reduced, and the extra premiums paid for the sake of participating in profits would yield them little or no return; but until the policy-holders had entirely ceased to receive any bonus



at all, the amount of the annuities could not be in any way diminished, while in the case of a proprietary office the entire funds of the shareholders would have to be lost before the annuitants would suffer. Consequently the security offered to annuitants is exceptionally strong, and in most British offices the most complete confidence may be felt that the annuities contracted for will be punctually paid without any diminution.

The offices are, of course, obliged to deduct income tax before paying annuities, but this can always be recovered if the income of the annuitant is not such as to render him liable for it. Further reference to the subject of income tax is made on page 171.

## SELECTING A LIFE OFFICE.

In previous parts of this book we have briefly explained the theory of life assurance, and have described the principal kinds of policies that are presented for the selection of an intending assurer. When such an one has made up his mind as to the kind of policy that will best suit his circumstances, he will naturally want to effect his assurance with an office that is certain to meet its liabilities when they occur, and that is likely to yield good returns in the shape of bonuses, if the policy is taken on the participating plan. How shall the intending assurer judge of the financial strength and future prospects of an insurance company? In actual practice most people are acquainted with, or can easily get to know, the reputation of various offices for security and bonus prospects, but it is always well that a man should be able, if he chooses, to form for himself some opinion upon these points, which are of vital importance. We must, therefore, briefly consider the accounts of life offices, and how to judge from them as to the position of a life company.

By the Life Assurance Companies Act it is necessary for assurance companies doing business in the United Kingdom to deposit annually with the Board of Trade a revenue account and balance sheet prepared in a prescribed way; they are also required to deposit from time to time certain particulars setting forth the present value of their existing liabilities, the bonuses they are

declaring upon participating policies, and various other details. From these returns it is possible to judge with considerable accuracy both the present status and the future prospects of a company.

### REVENUE ACCOUNT.

Dealing first with the annual accounts, we may illustrate the nature of the particulars required by combining into one account the statements filed with the Board of Trade during the year 1895 by the whole of the eighty-one ordinary offices doing business in Great Britain.

The combined revenue account is as follows :—

Summary of the Life Assurance Revenue Accounts of 81 Ordinary British Companies.			
Income.		Outgo.	
	£		£
Funds at beginning of year ...	188,372,536	Claims ...	12,792,252
Premiums ...	17,637,683	Cash Bonus & Reduction of Premiums ...	1,054,089
Consideration for Annuities ...	1,742,387	Surrenders ...	981,465
Interest and Dividends (less tax) ...	7,393,739	Annuities ...	1,135,282
Increase in Value of Investments ...	198,286	Commission ...	990,651
Fines, Fees, &c. ...	11,106	Expenses ...	1,593,984
Capital paid up ...	368	Bad Debts, and Decrease in Investments ...	148,835
Transfers ...	28,160	Interest & Dividends to Shareholders ...	616,696
Miscellaneous ...	4,262	Transfers ...	33,242
		Miscellaneous ...	31,648
		Funds at end of year	196,010,383
Total	<u>£215,388,527</u>	Total	<u>£215,388,527</u>

## FUNDS.

The first item shows the funds at the beginning of the year, and the last item shows the funds at the end of the year. In most cases the funds at the end of the year are greater than at the beginning, and it is normally satisfactory that they should be so, but a decrease in funds is no necessary indication of inadequate security. It may occur year after year in the case of a company that is not energetic and is not pushing for new business. This might indicate a certain lack of enterprise, and suggest that an office under more vigorous management might be likely to yield better results to its policy-holders, but a more frequent reason for a decrease in the funds is that a valuation has just been made, that large amounts have been paid in cash bonuses to policy-holders, and possibly large dividends paid to shareholders. In such cases the amount of funds being less at the end of the year than at the beginning is of no importance. The security offered by life offices can practically only be judged by a consideration of the valuation returns, to which we shall presently refer.

## PREMIUM INCOME.

The next item in the account is the amount of the premiums received during the year. This item is one of great importance. It offers the principal criterion of the progress that a company is making; it tells us better than any other detail of the annual account whether the business of a company is growing or declining, and practically nearly all ratios of any real value have reference to this item. An increase in premium income from year to year indicates a steady development of a company's business, and though increase in business is no test of

security, it is a practical test of successful management. The increase need not be large, but any office that is well managed and generally appreciated is almost certain to show a steady increase in premiums.

### ANNUITIES.

Next comes the consideration for annuities. In our remarks upon annuities we dwelt upon the necessity for selecting an office of unquestionable strength; but while it may be supposed that the transaction of a large annuity business indicates a general opinion that an office is financially sound, it must be borne in mind that the annuity rates help to determine the choice by an annuitant, and that the special connections of certain offices also influence the amount of annuity business they transact. Another point to be noticed in regard to this item is that annuity business should yield an appreciable profit to shareholders, or to policy-holders who participate in surplus arising from annuities. Too much stress must not, however, be laid upon this point; the recent decline in the rate of interest yielded upon investments has necessitated a very general reduction in the annuities that a company will give for a certain purchase price, and it is possible that some offices may have granted annuities upon rates that are scarcely likely to prove remunerative, in which case little or no profit would result from the annuity branch of the business. In considering the question of annuities, regard should be had not merely to the purchase price which appears on the income side but also to the amount of annuities paid on the outgoing side of the account.

### INTEREST.

We next come to interests and dividends; this includes all returns upon investments, the income tax being deducted.

From this item in connection with the funds the rate of interest that a company is earning may be readily determined. In ascertaining this rate it is usual to take the total amount of the funds, both invested and uninvested. Obviously, if a company is keeping considerable amounts uninvested, the result will be the same to the policy-holders as if the investments were earning a somewhat lower rate of interest. In taking the amount of the funds upon which the interest is to be calculated, it is, of course, wrong to take either the amount of the funds at the beginning of the year, or the amount of funds at the end of the year, and it is generally recognised that a slight error is involved in taking the mean of these two amounts. Half the interest should be deducted from the mean of the funds at the beginning and end of the year, in order to obtain the correct amount upon which to reckon the interest. The process of calculating the rate of interest would, therefore, be as follows :—

	£
Funds at beginning of year . . .	188,372,536
Funds at end of year . . .	196,010,383
	384,382,919
Deduct Interest . . .	7,393,739
Balance . . . . .	376,989,180
Divide by two . . . . .	188,494,590

This last figure gives the correct amount on which to calculate the rate of interest earned. If this sum of £188,494,590 earned in interest £7,393,739, it follows that £100 earned £3 18s. 5d. This result is obtained by multiplying the interest by 100 and dividing by 188,494,590. Provided the securities in which the funds are invested are of a satisfactory character—and this must be judged as far

as may be from the balance sheet—it is, of course, highly desirable that the rate of interest should be as high as possible.

### INCREASE IN VALUE OF INVESTMENTS.

It must, however, be borne in mind that many of the investments made by life offices yield a low rate of interest at first, but increase in value in the course of years; hence, the next item, “increase in the value of investments,” is one that should not be overlooked, as it may be of great importance to the prosperity of a company. On the other side of the account is an item, “decrease in the value of investments,” and the two must, of course, be taken together; neither the one nor the other always appears in the annual account. It is the practice of some companies only to re-value their assets at the time of making a valuation—perhaps every three, five, or seven years; it is the practice of others to re-value investments annually; and a third custom is to bring into account only the increase or decrease resulting from any securities actually sold in the course of the year. To form any reliable opinion upon this point it is, therefore, necessary to look at the accounts for a number of years. Some life offices invest considerable amounts in life interests and reversions, and when these are well selected they yield handsome returns; their very nature, however, makes it impossible to gauge from year to year the return that is being obtained from them. They come in under the head of increase in value of investments, either when the principal falls in, or at the re-valuation of assets in connection with the valuation statement. The other items on the income side of the account are of small importance and call for no comment.

## CLAIMS.

Turning now to the out-go side, the first item we meet is claims. Under this heading are included the claims that arise by death, and by the maturity of endowment assurances and endowments ; in addition to these it includes the reversionary bonuses that remain upon policies that become claims. It is impossible to judge from this item anything of much importance as to the progress of an office. The claims may be large in amount, and yet less than is to be expected according to the mortality table. This would simply mean that the company was getting rid of some of its liabilities, and would be a completely satisfactory state of affairs. On the other hand, the claims might be small in amount, and yet greater than the mortality table would suggest ; in this case it would be unsatisfactory. But unless the annual report of the company gives some information as to the expected claims, no opinion of any value in regard to this point can be formed from the amount of this item. The claims would, of course, be large in proportion to premium income in an old office that was doing a comparatively small amount of new business, and would be relatively small in an office that was rapidly increasing its business ; but the relatively large claims in the one case, and the relatively small claims in the other, would by themselves be no indication of whether the mortality experience was favourable or otherwise.

## CASH BONUSES.

The amount of cash bonuses and reduction of premiums largely depends upon the way in which the office distributes its bonuses. In many offices this item only appears after a valuation, while other offices show the



reduction annually, and, in the case of companies making an annual valuation, it naturally appears every year. Very little importance must therefore be attached to this item, unless a variety of considerations of a complicated nature are taken into account.

### SURRENDERS.

Next in order come surrenders. This means the amount for which a policy has been sold to the Insurance Company. While it is normally undesirable that a large amount of the assurance in force should cease to exist, there are various circumstances that make it impossible to judge much about the progress of an office from the amount of the surrenders. A company, for instance, doing a large tontine business, which gives policy-holders the option of surrendering the policy on advantageous terms at the maturity of the tontine period, might pay a large amount annually under this head, and it might be quite satisfactory all round that it should do so. On the other hand, if an office were writing a large amount of new business, much of which was of an ephemeral nature, and was surrendered shortly after being taken, it would probably mean that the office was incurring heavy expenditure in obtaining business, for which it received no adequate return. Another consideration that may probably affect this item to a slight extent, is that if a company gives liberal surrender values, its policies are apt to be surrendered to the office; if the surrender values a company pays are small, its policies are more likely to be kept in force either through the sacrifice being too great or because the policy can be more advantageously sold elsewhere, and kept in force by the purchaser. A further small point in this connection is whether an office makes loans upon its policies or not. If it does, the policies

are often kept in force subject to the loan, rather than surrendered outright. Such considerations as these, however, are seldom of any great importance. The question of surrenders is further dealt with on p. 160.

The annuities on the outgo side of the account, of course, mean the annuities paid by the company, and have already been referred to in connection with the consideration for annuities on the income side of the account.

### COMMISSION AND EXPENSES.

The next two items—commission and expenses of management—are of considerable importance.

In the chapter on Loading, page 36, and in that on New Business, page 57, we have already referred to the question of expenses—the word expenses as there used, included commission, and it is difficult to separate the two. It is the practice of some offices to pay their agents entirely by commission, of others to pay some agents entirely by salaries, and of yet other offices to pay partly by commission and partly by salary. For this reason it is seldom of much use to make any distinction between the amounts paid for commission and for expenses; for most practical purposes the former may be included with the latter.

The expenditure that an office incurs in the management of its business has a very material effect upon the bonuses it is able to pay, and in selecting an office the rate of expenditure should be duly considered. The simplest way of dealing with expenses is to see what proportion of the total premium income is so absorbed; but, unfortunately, this simple method is almost entirely devoid of any practical value, although it is frequently used. As already explained on pages 57–59, new business costs far more to obtain than old business costs to handle, and it is consequently necessary,

to take into account the proportion of new business that an office is transacting. It is perfectly possible that of two companies managing their business at precisely the same expenditure, the one may be absorbing in expenses a much larger proportion of its total premium income than the other. For instance, one office whose new premiums are only 5 per cent. of its total premiums, may be spending 86 per cent. of its new premiums and 8.6 per cent. of its renewal premiums, which altogether would form  $12\frac{1}{2}$  per cent. of its total premiums, upon the management of its business; while another office whose new premiums were 15 per cent. of its total premiums, might only be spending 85 per cent. of its new premiums and 8.5 per cent. of its renewal premiums, which would together show 20 per cent. of its total premiums absorbed in commission and expenses; yet the office spending 20 per cent. of its total premiums might be really working more economically than the office spending only  $12\frac{1}{2}$  per cent.

The subject is fully dealt with in Bourne's Insurance Directory for 1895, and being of a somewhat technical nature it would be out of place to deal with it here at any great length; but as the question of expense ratios is one that is frequently laid stress upon by agents of various offices, it is necessary to explain that while rightly used it is a valuable test, it is especially susceptible of being so applied as to lead to entirely erroneous conclusions. Besides this principal point of the necessity of having regard to the amount of new business transacted, there are various minor details that tend to confuse the issue. Among them may be mentioned the inclusion or exclusion of expenses connected with the annuity business; the statement of new premiums with or without the deduction of the premiums paid to other companies for re-assurance of part of the sum assured; the inclusion

under the head of new premiums of single payments as distinct from annual premiums; and the various classes of business done by different offices, some being at high and some at low premiums. Thus, while a fair judgment upon the expenditure that an office is incurring is of great importance, the difficulties of forming such a judgment are considerable, and opinions on this point should not be too hastily formed.

The subject of commission suggests other considerations, inasmuch as it gives rise to the question whether or not it is advisable to employ agents to canvass for assurance. It is true that a few offices who employ no agents and pay no commission achieve a considerable measure of success, but it is equally certain that insurance business as a whole could not be conducted without the insurance agent: only a small number of people voluntarily go to an office and seek assurance. For the most part it is necessary to persuade a man into taking a policy, and to bring some pressure to bear upon him to make a proposal, see the medical examiner, and pay the premiums. It is to be regretted that people in general do not more readily take, of their own initiative, a step that is so distinctly to their advantage; but the fact remains that it is as necessary to employ agents or travellers to sell life policies as to sell any other commodity. It is to the advantage of the public to buy good coals or carpets, but unless a firm with coals or carpets to sell seeks its customers, it will not sell them, even though they be the best in the world. It is the same with life assurance—unless the policy-holders are sought they will not be obtained.

The rate of commission that is paid to agents varies largely: some offices consider it prudent to pay rates that others would never contemplate giving, but it may be presumed that most managers of assurance offices know their

business and get good value for money. Speaking of insurance agents as a whole, it may certainly be said that, for the work they do, they are by no means an overpaid class; and when we consider the really very great boon that life assurance is to policy-holders in almost every case, it may certainly be felt that few men do more good to the community at large than successful fair-working assurance agents.

The bad debts incurred by insurance companies are a very small item, and the decrease in the value of investments has been dealt with in discussing increase.

### DIVIDENDS TO SHAREHOLDERS.

Interest on capital, and dividends and bonuses to shareholders, is an important item: it raises the question whether a mutual office, or a proprietary office whose shareholders and policy-holders each receive part of the surplus, is preferable from the latter's point of view. Many people are apt to take it for granted that a mutual office must invariably be the better, but this is by no means the case: judged by the actual results obtained, it cannot be said that either proprietary or mutual offices are necessarily the better. There are instances in which the shareholders receive so large a proportion of the surplus that the bonuses are exceptionally small; but in some proprietary offices there are sources of surplus that more than compensate for the payments to shareholders. Many proprietary offices transact an exceptionally large proportion of non-participating business in the profits of which participating policy-holders share, with the result that the profits so derived equal, if they do not exceed, the payments to shareholders. In other cases, especially when fire insurance business is transacted as well as life, the life assurance

account is sometimes only charged a fixed percentage of the premiums—say ten per cent.—for the management of the life business, and the low rate of expenditure so produced is distinctly favourable to the participating policy holders. It may perhaps be added that the additional security afforded by shareholders' capital seems to attract the purchasers of annuities, and the participating policy-holders sometimes share in the profits of the annuity business. It must, however, be remembered that nearly all British life offices, whether proprietary or mutual, are so thoroughly sound that the additional security of share capital is superfluous. It thus appears that the question whether a life office is proprietary or mutual is one of entirely subordinate importance, and in selecting a life office this question plays a very small part.

### BALANCE SHEET.

Other items of the revenue account call for no comment, and we may turn for a moment to the balance sheet which each office is required to deposit annually with the Board of Trade. For the most part, the balance sheet of a life assurance company is a document from which little information of real value can be obtained; the particulars required to be given are vague in the extreme. Occasionally it is the means of disclosing some information of importance, but as a rule the knowledge to be gained from it is very slight. In any case it is to be judged so far as possible on ordinary business lines, and no special assurance knowledge is required in forming an opinion upon it.

### VALUATION RETURNS.

We may, therefore, pass on to the far more important valuation returns which a life office has to make from time to time. In the chapter on policy values, pages 32-35, we

briefly described the nature of a valuation, but there are various additional considerations to which we must now give some attention. The object of a valuation is to determine the present value of a company's liabilities by taking due account of the amounts it will have to pay and to receive. The extent to which the funds it has in hand exceed its net liabilities, shows the surplus existing; and the greater part of this surplus is in most cases available for distribution as bonuses among the participating policyholders. One of the first questions that arises is the basis upon which it calculates its liabilities—*i.e.* the mortality table it adopts and the rate of interest it assumes. If a mortality table is used that brings out a high rate of mortality, the liability will naturally appear greater than a table that shows a low rate of mortality. The deaths occurring according to the one will fall earlier than according to the other, and the number of premiums that the office calculates to receive will be smaller; hence the liability brought out will be greater, and the reserve necessary for the company to hold will be larger. Similarly with the rate of interest assumed: if the company reckons that it will only receive a low rate of interest upon its funds, it will require a larger amount in hand to meet its liabilities, than if it assumes that it will earn interest at a high rate. Consequently the mortality table and the rate of interest assumed are of great importance. The following table, which is based upon a paper by Mr. George King, shows the relative amounts of funds it is necessary to have in hand under various mortality tables, and rates of interest, for precisely similar policies in each case:—

Table showing relative amount of Reserves required to meet similar liabilities according to various Tables of Mortality and Rates of Interest.

Table of Mortality and Rate of Interest.	Age of Office				
	10 Years	20 Years	30 Years	40 Years	50 Years.
	Reserve	Reserve.	Reserve.	Reserve.	Reserve.
	£	£	£	£	£
H <sup>m</sup> and H <sup>m</sup> 3 per cent	1,000	1,000	1,000	1,000	1,000
" 3½ "	937	944	950	955	957
" 4 "	879	892	904	912	917
H <sup>m</sup> 3 "	943	960	972	978	980
" 3½ "	882	905	923	933	938
" 4 "	826	854	876	890	898
Carlisle 3 "	866	885	904	916	921
" 3½ "	807	832	856	871	879
" 4 "	753	783	810	829	839
English, No. 3, 3 "	916	933	945	952	955
" 3½ "	858	881	898	909	914
" 4 "	804	832	854	868	875

This shows that if the liabilities of an office that has existed for ten years require, when calculated by the H<sup>m</sup> and H<sup>m</sup> tables with interest at 3 per cent., a reserve of £1,000, precisely similar liabilities when calculated by the Carlisle table at 4 per cent. require only £753. Obviously, if the two companies have in the future precisely the same experience in regard to mortality and interest, the company that has reserved £1,000 in order to meet its liabilities will have £247 more than the other, with interest in addition, when its liabilities have matured. Hence a company valuing on a stringent basis is more likely to have surplus available for bonuses than a company valuing on a lax basis. The object of adopting the stringent basis,



is mainly that a good surplus may be available for future bonuses, and it is customary among first-class assurance offices to assume a greater mortality than is likely to be experienced and a rate of interest lower than is likely to be earned. It is also necessary to make sufficient provision for future expenses, and this is usually, though not always, done by reserving the whole of the loading, the meaning of which is explained on pages 36-39. These three items—mortality, interest, and loading—form the principal sources of surplus, as explained on pages 40-53.

Other information of great value is obtained from the valuation returns. There is a statement of the policies in force, of the surplus earned during the valuation period, of the manner in which the surplus is distributed among the policy-holders, and of the bonuses declared upon participating policies. These results are made use of in various compilations, and supply the chief material from which an opinion as to the relative merits of different offices can be formed. Among the principal books setting forth these facts are Bourne's "Insurance Directory" and "Bourne's Handy Assurance Manual," both by the present writer, and "Surplus Funds of Life Offices," by Mr. W. M. Monilaws. Each of these is published annually, and reference may be made to them for further details.

## PROPOSAL FORMS.

We have now reached a point where the kind of policy to be taken has been decided upon, the manner in which the premiums shall be paid has been determined, and the office with which the assurance shall be effected has been selected. In all probability these decisions have not been arrived at without intercourse with one or more assurance agents, and it is probable that through an agent the proposal will be made to the life office, though this is by no means necessary. The proposal has to be made upon a prescribed form, which varies with different offices, but certain information is always required. In nearly all cases medical examination is necessary, and we will therefore suppose that a policy requiring such an examination is in contemplation.

The proposal form consists of a series of questions with spaces for filling in the replies to them. The name, residence, profession, and occupation of the life to be assured is first required; following this come the date and place of birth. It is not absolutely necessary to give exact answers to the last two questions in the case of policies for the whole of life or for long terms, but it is very much better to do so than to leave the matter unsettled, with the result that some difficulty in regard to it may arise when the policy becomes a claim. The usual proof of age is a certificate of birth, though less formal evidence will sometimes be accepted if this is not forthcoming. It is of course essential for the office to know the age of the assured in order to know what premium ought to be charged, and though it is possible to rectify mistakes later on (see p. 158), it is more satisfactory all round to have the age admitted on the policy at the outset.

Whether the person to be assured is married or single

whether he has ever resided out of Europe, and if so, where, and when; whether there is any immediate intention of going abroad, are the questions that usually come next. The past and present health are next inquired into with a varying amount of fulness. Particulars in this respect are required in more detail by the medical examiner. Normal inquiries, however, are as to the principal illnesses or accidents experienced; whether had smallpox, or been vaccinated; suffered from any complaint of the lungs, fits, insanity, rupture, undergone any surgical operation, and other questions of a like nature.

Past and present habits, chiefly as to temperance, are next asked about, together with the name and address of two intimate friends not interested in the assurance, who may be referred to for general information as to the habits and state of health of the proposer. Companies do not put friends to any appreciable amount of trouble in replying to inquiries, and no hesitation need be felt in allowing a reference of this sort to be made. The name and address of the usual medical attendant, and of any other doctors who may have attended the proposed assurer in recent years, is also asked for.

In the chapter dealing with surplus arising from mortality, it was shown how important it is for assurance companies to be careful in the selection of lives, and as for the most part the policy-holders participate in profits, they will readily recognise the fitness of careful inquiry as to the health of all applicants. It is plainly required by mere honesty and common sense that all the questions asked should be candidly replied to. It is improbable that replies more favourable than truthful would lead to a proposal being accepted that would otherwise have been declined, or to its being granted on more favourable terms than would otherwise be the case, and inasmuch

as the replies to the questions on the proposal form are part of the contract with the life assurance company, any serious or wilful misrepresentations legally invalidate the policy, and might cause the claim when made to be disputed. It is to the advantage of life offices to deal liberally with their policy-holders, but in the interests of the great majority of the assured the company is bound to see that no false representations are acted upon.

In order further to judge of the quality of the life proposed, a few particulars as to family history are required. The present age and state of health of the father and mother are asked for if they are alive, and the age at death and cause of death if dead. The same questions are asked about brothers and sisters. A rough and ready rule for judging as to family history is to take the expectation of life of the surviving members of the family from the mortality table, column 6, page 4, and the actual duration of the lifetime of the deceased members, and see whether the average lifetime so obtained exceeds or falls short of the average duration of life of a person at the age of the assurer. This may be illustrated as follows :—

Father alive, age	...	78	}	Together	83·3
Expectation	...	5·3			
Mother died at age	...	...	...	...	57·0
Brother alive, age	...	50	}	Together	70·3
Expectation	...	20·3			
Brother alive, age	...	38	}	Together	66·8
Expectation	...	28·8			
Sister alive, age	...	47	}	Together	69·4
Expectation	...	22·4			
Sister alive, age	...	43	}	Together	68·2
Expectation	...	25·2			
Sister died, age	...	...	...	...	17·0
Total	...	...	...	...	432·0
Average (divide by six)	...	...	...	...	72·0
Age of Proposer	...	35	}	Together	65·0
Expectation	...	31			

From this it appears that the members of the family live on the average to a greater age than people in general at the present age of the proposer might expect to reach, and consequently from this point of view the family history is quite satisfactory. If the average age at which the members of the family have died, and are expected to die, had come out less than sixty-six, instead of more, the family history would be so far unsatisfactory.

Having dealt in this way with the life of the proposer, particulars are asked as to the amount and kind of policy it is proposed to take, and whether the premiums are to be paid yearly, half-yearly, or quarterly, as to which see p. 90.

Questions are next asked as to whether the applicant is now proposing for assurance elsewhere, whether the life has been in the past proposed for assurance to any life office, and if so, whether it has been accepted at ordinary rates, at increased rates, or declined. The names of the companies connected with such proposals are required to be given.

It is the custom of life offices to exchange in confidence information about the lives declined by them, and a system is in force by which a note of each life declined is communicated to other offices. This is done by a few details being sent to a central bureau, by whom it is printed on cards, and the cards filed in cabinets in the various offices. The information is too meagre for any use to be made of it unless the declined person applies to some other company—in which case reference is made to the cabinet, and, if a card is found that appears to correspond with the case of the proposer, application for fuller information is made to the office that declined it. This system works admirably in the interests of policy-holders. We have dwelt upon the necessity for full information being supplied to the companies; and it is only in the event of suppression of

information that the register of declined lives would come into play.

It will be seen that this system makes it almost impossible for deliberate fraud or crime to be successfully committed. People unacquainted with the annals of life assurance probably have little idea of the number of attempts that have been made to commit fraud by means of life assurance. There are many instances where one person has assured the life of another for large amounts, and shortly afterwards caused the death of the person assured, in order to obtain the money, while sometimes a person that is in too bad a state of health to be accepted by any office has thought to obtain assurance by concealing information in regard to such refusals.

About the only questions remaining to be answered deal with the person to whom the sum assured is to be made payable. When this person is a near relation of the man proposing, no questions are asked, but when it is a stranger, some evidence is required of insurable interest, in order to satisfy the company that the policy is a legal contract, and that no such fraud or crime as is referred to above is in contemplation.

It must not, of course, be supposed that the company want to pry into private matters, but, at the same time, they have to guard the interests of the great body of their policy-holders against malpractices, and to conform to the law in regard to insurable interest.

Information about making policies payable to the wife or children of the assured is given on page 167. Particulars as to the assignment of policies after they have been taken out will be found on pages 168-170, together with a form for making the assignment.

## MEDICAL EXAMINATION.

Having sent in the proposal, the next step will be to see the medical examiner of the company. In London and other large towns it is usual to be examined at the office of the company, and the medical examiners attend at specified times for the purpose. Where necessary, however, arrangements may usually be made for seeing the examiner at his consulting-rooms, and in smaller places some local doctor is usually nominated, who makes the examination and reports to the chief medical officer of the company.

When we remember the extremely important effect that a favourable mortality has upon the prosperity of a company, we should always regard with satisfaction the careful examination of proposed assurers: laxity in this respect is one of the surest ways of producing unsatisfactory results in the future. If the assured is himself in good health, he should welcome stringency of medical selection on the part of the office with which he assures; if his health is indifferent, he should not expect to obtain his policy on such favourable terms as a more healthy man of the same age. The standard of medical selection varies considerably in different offices, and medical examiners differ in their opinions as to the effect upon mortality of various diseases. If, therefore, a would-be assurer is declined by one office, he should not give up his intention of taking a policy, but should submit himself for examination to other offices.

Moreover, while some companies decline to accept any but first-class lives, most offices are prepared to take inferior lives at increased cost. The extra premium that

is charged is fixed as nearly as may be according to the increased risk that the company incurs, but the bonus system of some offices works in such a way that if the assured lives for a normal length of time the extra bonus he receives nearly makes up for the additional premium he pays. It is sometimes the case that an assurer who is declined at the comparatively low premium charged for whole-life assurance is accepted at the higher premium required for assurance by limited premiums or for endowment assurance. If the nature of his weakness is such as to make it probable that his death will occur earlier than usual, though not in the immediate future, this course may be satisfactorily adopted by an office ; but there are certain diseases which are likely either to terminate fatally fairly soon, or to pass away and not cause premature mortality—in the latter case, endowment assurance would probably not be offered.

There are some offices which make a speciality of the assurance of invalid lives, and anyone well acquainted with the working of the different companies could readily advise what office to apply to in the event of the proposer having been rejected by other offices. When extra is charged for an inferior state of health, it may frequently be arranged in one of two ways. Either the premium charged per £100 may be increased, or the normal premium may be charged, and if the death occurs within a certain time, the sum assured is less than would be provided according to the ordinary tables.

Assurance without medical examination is put forward by some companies ; it must not, however, be supposed that any office is foolish enough to accept proposals at ordinary rates without adequate information in regard to the health of the proposer. Assurance without medical examination requires certain details as to health to be



stated, and if these appear sufficiently satisfactory, the company will, perhaps, grant a policy that secures £100 at death, within a given time, and £200 on surviving the fixed period, the premium charged being, of course, considerably higher than the ordinary rate for a £100 policy. Medical examination, as conducted by the examiners of life offices, is certainly nothing to be dreaded, and it is probably in every case detrimental to an assurer to try and dispense with it, while it is equally foolish for the most sensitive person to abstain from applying for life assurance out of any dread of being examined. Medical officers are conducting such examinations day after day, and do so with the utmost consideration for the people who come before them. It is a necessary prelude to assurance, and should not be in any way objected to by anybody.

When the medical officer has completed his examination, he makes a private report to the directors, and, if this is satisfactory, the proposer is notified that his proposal is accepted, and that a policy will be issued on receipt of the premium.

In the case of policies for quite a small amount, or under exceptional circumstances, medical examination fees have to be paid by the assurer, but under all ordinary conditions they are paid by the company, and the policyholder has no payment of any kind to make, with the exception of the premium. There are, however, one or two classes of policies of an unusual character in connection with which entrance fees are charged. This is especially the case with natural premium and assessment companies, whose system has already been condemned on pages 107 to 110.

## POLICY CONDITIONS.

Having paid the premium and received the policy, the assured should make a point of reading the policy and seeing that everything in it is correct, and that he is fully acquainted with its conditions. We will next consider what these conditions may reasonably be.

### TRAVEL AND FOREIGN RESIDENCE.

It is a matter of common knowledge that certain parts of the world are more unhealthy to live in than others, it is reasonable, therefore, that an office should charge an extra premium to people living in unhealthy climates; conditions in this respect have, however, been much modified in recent years. Practice on this point still varies considerably in different offices, and an assurer to whom the question is of importance should satisfy himself as to these conditions before taking his policy. If at the time of effecting the assurance there is no prospect of staying in an unhealthy climate, many offices will now grant a policy that, without extra charge, permits travel in any part of the world, and in most cases after a policy has been in force for three or five years, the policy-holder is free to reside or travel anywhere without extra charge. Where there is an immediate prospect of residing in an unhealthy climate, an extra premium is charged, the extra ceasing when the policy-holder returns to healthy regions.

### MILITARY AND NAVAL RISKS.

Closely connected with the subject of foreign residence is that of naval and military risks, into which there

enters not only the question of residence, but of risks of accidents at sea and warfare. The practice in this respect varies much. Many offices will remove all restrictions in consideration of receiving an extra premium of from ten shillings to one pound per cent., payable either for the whole duration of the policy or till retirement from the service; others charge an extra premium as occasion arises, while yet another plan is to charge no extra premium, but to grant no bonuses until retirement. In the case of officers in the mercantile marine many companies now make no extra charge.

### SUICIDE.

Suicide is held by some offices to invalidate a policy whenever it occurs, but the more usual practice is not to cancel the policy if it has been one or two years in force before suicide is committed. A very few offices do not invalidate the policy even if suicide is committed immediately after the first premium is paid. Probably no offices cancel a policy on account of suicide if it has been assigned to a third person for *bond fide* consideration. Were they to do so it would seriously interfere with the use of life policies as collateral securities. In this as in every other respect the tendency of the times is towards greater liberality of conditions, and while there is little evidence that persons take policies with a view to subsequently committing suicide and so obtaining a sum of money for their estate, yet it is generally regarded as appropriate that at least a year should pass before the policy becomes free from restrictions in this respect.

### ERRORS IN AGE.

We have already dwelt upon the necessity of correct statement of age and the advisability of supplying proof

of age at the time of effecting the policy. If, however, the matter has been neglected, and an error is found in the statement of age it does not invalidate the policy, but is allowed to be rectified, when the age has been understated, by the payment of the difference (accumulated at interest) between the premiums actually paid and the premiums that ought to have been paid, or by reducing the sum assured by such an amount as the premiums actually paid would have secured at the policy-holder's true age. It seldom happens that the age is over stated, but if it were, a few offices would make an allowance on this account, though most companies, unless the error were considerable, would probably rightly decline to do so.

#### INDISPUTABILITY.

This is a word that is often used, but is not a very happy expression: it commonly implies that, with the exception of errors of age and fraudulent misstatements, no objection of any kind will be made to the payment of the sum assured when it becomes a claim, provided the premiums have been paid. By the law of the land any contract is made void by fraud, and all the protestations in the world about indisputability would not prevent the policy being disputed on account of fraud. The question of age we have already dealt with, and any other cause that might invalidate a policy would probably cease to have any weight after the assurance had been in force for a few years, whether the policy were called indisputable or not.

#### NON-FORFEITURE.

We explained in the chapter on policy values, pages 32 to 35, that under most systems of assurance, policies acquire an actual value through the accumulation in the earlier

years of part of the difference between the cost of assurance and the premiums actually paid. Non-forfeiture means that some part of this policy value will be applied in various ways for the benefit of the policy-holder in the event of his ceasing to pay the premiums. Under a policy effected by limited premiums, whether whole-life or endowment assurance, it is common to give a paid-up policy for a sum in the same proportion to the original amount assured, as the number of premiums paid bears to the original number payable. Thus, if it is arranged to pay premiums for twenty years on a policy for £1,000, and ten premiums have been paid, a policy can usually be obtained for £500. In some cases the first one or two premiums paid are excluded on account of the extra cost of new business absorbing a large proportion of the first year's premiums. In the case of policies subject to premiums for life, a definite proportion of the sum assured cannot be secured by each premium paid; but in most offices the greater part of the policy value can be used either to pay the premiums for the full amount of the policy for as long a period as the value will cover, or to pay them for a longer period for a smaller sum than that originally assured. In some cases one or other of these provisions is carried out by the office without any application to do so being made by the policy-holder, while in others it is necessary for the policy-holder within six months, or some such period, of the date when the last premium is due, to ask the company to do so.

### SURRENDER VALUES.

Instead of being applied to pay premiums, the policy-holder may, under most classes of assurance, surrender his policy to the company for a cash payment. The practice in regard to surrender values varies within very wide

limits, as may be seen from the following table of the surrender values granted by six representative offices, which will give some idea of the amount paid on surrender. These figures may be advantageously compared with the policy values given on p. 34 :—

Table showing Surrender Values given for Whole-Life Participating Policies of £100 exclusive of Bonuses.

Office.	Annual Premium.	Age at Entry.	Number of Years in force.											
			5			10			15			20		
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
A	1 18 2	20	3 16 4	7 12 8	11 9 0	15 5 4	19 1 8	22 18 0	26 14 4	30 10 8				
	2 9 10	30	4 19 8	9 19 4	14 19 0	19 18 8	24 18 4	29 18 0	34 17 8	39 17 4				
	3 6 1	40	6 12 5	13 4 4	19 16 6	26 8 8	33 0 10	39 13 0	46 5 2	52 17 4				
	4 11 11	50	9 3 10	18 7 8	27 11 6	36 15 4	45 19 2	55 3 0	64 6 10	73 10 8				
B	2 0 1	20	1 0 2	8 0 4	12 0 6	16 0 8	20 0 10	24 1 0	28 1 2	32 1 4				
	2 8 10	30	1 17 8	9 15 4	14 13 0	19 10 8	24 8 4	29 6 0	34 3 8	39 1 4				
	3 4 6	40	6 9 0	12 18 0	19 7 0	25 16 0	32 5 0	38 14 0	45 3 0	51 12 0				
	4 10 2	50	9 1 6	18 3 0	27 4 6	36 6 0	45 7 6	54 9 0	63 10 6	72 12 0				
C	2 2 1	20	4 4 2	9 9 4	14 14 6	19 19 8	25 4 10	30 10 0	35 15 2	41 0 4				
	2 10 3	30	5 0 6	11 6 1	17 11 8	23 17 3	30 2 10	36 8 5	42 14 0	48 19 7				
	3 5 5	40	6 10 10	14 14 4	22 17 10	31 1 4	39 4 10	47 8 4	55 11 10	63 15 4				
	4 10 6	50	9 1 6	20 8 4	31 15 2	43 2 0	54 8 10	65 15 8	77 2 6	88 9 4				
D	1 17 11	20	2 16 5	5 13 6	8 10 3	11 17 0				..				
	2 9 6	30	3 14 3	7 8 6	11 13 7	17 9 3				..				
	3 5 11	40	4 18 10	10 15 1	18 1 3	26 4 6				..				
	4 11 11	50	6 17 11	16 5 10	26 3 10	36 9 6				..				
E	2 0 6	20	2 14 0	6 1 6	9 9 0	12 16 6	16 4 0	19 11 6	22 19 0	26 6 6				
	2 9 6	30	3 6 0	7 8 6	11 11 0	15 13 6	19 16 0	23 18 6	28 1 0	32 3 6				
	3 5 2	40	4 6 11	9 15 6	15 4 1	20 12 8	26 1 5	31 9 10	36 18 5	42 7 0				
	4 10 11	50	6 1 3	13 12 9	21 4 3	28 15 9	36 7 3	43 18 9	51 10 3	59 1 9				
F	2 0 4	20	3 7 3	6 14 5	10 1 8	13 8 11	16 16 1	20 3 4	23 10 7	26 17 9				
	2 10 9	30	4 4 7	7 8 9	12 13 9	16 18 4	21 2 11	25 7 6	29 12 1	33 16 8				
	3 5 11	40	5 9 10	10 19 9	16 9 6	21 19 3	27 9 4	32 19 2	38 9 0	43 18 11				
	4 10 9	50	7 11 3	15 2 6	22 13 9	30 5 0	37 16 3	45 7 6	52 18 0	60 10 0				

The conditions as to surrender values have been growing distinctly more liberal in more recent years, but there is in many cases room for still further improvement in this respect. Under tontine policies, described on pp. 81-86, it is frequently provided that the policy may be surrendered for cash at the end of the distribution period, and it is

then usual to grant surrender values on a much more liberal scale than is common when the policy is surrendered at any odd time to suit the convenience of the policyholder.

### LAPSES.

We have just seen that a policy may be terminated after it has been in force for a few years, and a payment received from the assurance company on the surrender of the policy, but it sometimes happens that previous to the policy acquiring a surrender value the assured may be unable or unwilling to continue the premiums, and may let it lapse. In consequence of the expenses incurred by assurance companies in connection with new policies, to which reference has several times been made, an office is unable to give surrender values until two or three premiums have been paid. Consequently when a policy lapses that has only been in force for a short time no claim can be made upon the assurance company when the payment of premium is discontinued.

The most frequent reason for lapsing a policy is that the payment of premiums is impossible or inconvenient. Where this inability to pay is temporary, the offices are generally prepared to reinstate the policy within six or twelve months, if the arrears of premium are paid. In some cases the conditions of reinstatement are definitely announced, and in others they are determined by the directors, or the management, according to the circumstances of each case. Especially with policies that have been a long time in force, it is to the advantage of the policyholder to reinstate the policy if possible, for if he afterwards found assurance necessary, and had to take a fresh policy, the premium would of course have to be paid for the increased age, which would be at a higher rate.

Evidence of health is usually required before a lapsed policy is reinstated, but it will be found that offices are usually prepared to deal with cases of this sort in a liberal manner.

### LOANS ON POLICIES.

If a policy has been in force sufficiently long to acquire a surrender value, most of the companies are willing to make a loan upon the policy to the extent of 80 or 90 per cent. of the surrender value. If circumstances make the payment of premiums impossible, it may be advisable to borrow from the company a sufficient amount to pay the premium, but under most circumstances it is highly desirable to avoid mortgaging a policy in any way. Life policies are frequently the only assets a man leaves at his death, and the maintenance of this provision for those dependent upon him should be regarded as a necessity every whit as imperative to maintain as the payment of rent or taxes. Every effort should be made to keep it in force, and to leave it entirely unencumbered, and although under exceptional circumstances a life policy may be advantageously used for tiding over temporary difficulties, a great part of the benefits of life assurance is lost if the policy is hampered by debt.

From the point of view of the assurance company, loans upon policies are a secure and satisfactory asset, and some offices have large amounts lent in this way.

### DAYS OF GRACE.

It is usual to allow thirty days after the premium becomes due during which it may be paid, the policy in the meantime being kept in force, and being paid in case of death, subject to the deduction of the premium due. Some offices limit the days of grace to three weeks.



and others extend them to six weeks; but thirty days is the usual limit. If it is found impossible to pay the premium within this period, an office will generally allow an extension of time if requested to do so, subject to the payment of interest on the premium and perhaps a small fine.

### SALES OF POLICIES.

That the surrender values granted by life companies are frequently inadequate may be seen from the fact that policies may often be sold by auction or otherwise for a considerably larger sum than the surrender value offered by the company issuing the policy, and, after deducting expenses connected with the sale, a policy-holder may often obtain from 10 to 50 per cent. more for his policy than he could get from the life office in surrender value.

### PURCHASE OF POLICIES.

In this connection it may be worth while to refer briefly to the purchase of life policies as an investment. If an individual wishes to purchase a life policy, say for £1,000, he may set aside £1,000 for the purpose, knowing that his capital will be replaced at the death of the assured. Part of the £1,000 so set aside may be employed to buy an annuity on the life of the assured, that will pay the premium on the policy and return to the investor interest upon the £1,000 he has sunk on the investment. After purchasing the annuity the balance of the £1,000 may be employed to buy the policy. As a concrete instance of this we may take the case of a non-participating policy for £1,000 effected at age thirty at a premium of twenty-one pounds a year. The policy had been twenty years in force, and the assured was therefore fifty years of age, when he proposed to sell the policy.

If the investor desired to get 4 per cent. upon his money he must purchase an annuity of £21 to pay the premium, and £40 to yield him 4 per cent. upon his investment. These would cost him about £800, leaving him £200 to pay for the policy should such a sum be necessary. However long the assured might live, the annuity would pay the premiums, and yield him 4 per cent. interest, while at the death of the assured the £1,000 invested would be returned to him. When the policy purchased participates in profits, the question of bonuses has to be taken into account, and the return upon the investment cannot be exactly foretold; but it is frequently possible to buy either participating or non-participating policies that are certain to yield a remunerative return. Of course, if a person or a corporation is prepared to run the risk of having to pay the premiums for a large number of years, and to forego in the meantime the receipt of interest upon the capital invested, there is no occasion to purchase an annuity; but buying an annuity almost entirely takes away the speculative nature of the investment and makes it a certainty.

### THE FORM OF POLICY.

In making such a contract as is implied by taking a life policy it is important that the assured should carefully examine his policy. Many offices print in their prospectus the general form of policy they employ, and although for the most part they contain little or nothing to which serious exception need be taken, it is well before the transaction is completed that the policy-holder should satisfy himself as to the conditions of the contract.

There has been a distinct tendency in recent years to simplify the form of the policy as much as possible, and to remove from it all unnecessary restrictions. At the same,

time it must be remembered the tendency to reduce the provisions of the policy to the single condition of the payment of premiums is not an unmitigated advantage. Liberality in regard to foreign travel, military risks, female lives, suicide, lapses, surrender values, and the like, involves a certain amount of cost. Although freedom from restrictions may be of very great advantage to those who benefit by them, they have to be made at the expense of those other policy-holders to whom they are of no use. The additional cost to such policy-holders as do not require such concessions may be extremely small, but at the same time a perfectly good case may be made out for those offices who charge the cost of the liberality to the people who profit by it. Naturally a policy-holder who is likely to travel will want his policy as free from restrictions in this respect as possible, and there are plenty of offices that will meet his case; and so in regard to other provisions of the policy, the presence and the absence of restrictions can both be justified; but whenever a policy is taken it is important that its provisions should be noted by the policy-holder, and its conditions clearly understood in order that they may be complied with as circumstances arise.

### TEETOTALISM.

Some offices cater specially for the assurance of the lives of total abstainers from intoxicating beverages. The mortality experience of such persons is appreciably superior to the mortality experience of people in general. Recognising this, some companies either grant policies on the lives of abstainers at reduced rates, or for the same premiums give them larger bonuses. So that a person who is, and who intends to remain, a total abstainer should see whether this fact can be advantageously made use of in taking a policy. It by no means follows that results in the

abstainer's section of one company are superior to the general results to be obtained from some other office which makes no distinction on this account between its policy-holders. It is, however, a matter that should not be neglected by a person seeking to assure to the best advantage. Evidence of abstinence is required at the commencement, and from time to time.

### MARRIED WOMEN'S PROPERTY ACTS.

Under the Married Women's Property Acts a husband can assure his own life for the benefit of his wife or children, and a wife can assure her own or her husband's life for her separate use, and her own life for her children's benefit. Policies taken out in this way are free from the control of creditors in the event of the insolvency of the person assured. Although this provision may sometimes seem to press hardly upon creditors, it is a significant recognition of the primary object of life assurance being the protection of a man's family. Assurance companies are always willing to advise as to the best way of making such provision effectual, and in conjunction with such plans as those described in the chapter (pp. 92-95) on insuring an income, a man may feel perfectly secure as to the future provision of those dependent upon him, provided only that the payment of premiums is kept up. In no other way is it possible to make such certain provision for the future as is afforded by life assurance.

### LOANS ON PERSONAL SECURITY.

Although policies are usually taken out with a view to providing protection for family or dependents, in which case every effort should be made to maintain them intact, a policy may sometimes be taken in connection with a loan made by a life office on personal security. This

means that the assurance company lends the policy-holder some money, and receives the guarantee of two or three responsible persons for the payment of the interest upon the loan, and the repayment of the principal by instalments spread over three or five years. In such a case the office requires a policy to be taken for double the amount of the loan, or at least half as much again as the loan, so that in the case of the borrower's death the money lent may be repaid without calling upon his sureties. It frequently happens that if a man lives, he is well able to pay the interest and the instalments as they become due, but if he were to die, repayment of the principal might cause some difficulty. Loans of this sort are often of great service, but a curious idea exists in some minds that an assurance company will make a loan without any guarantee from third persons, immediately a policy has been issued. It will be apparent to all readers of this book that any such action by a company is entirely out of the question.

### ASSIGNMENT OF POLICIES.

Besides being of value for such purposes as those just described, a life policy is sometimes available as security for the payment of debts. In such a case it would be assigned to the creditor, and at the death of the assured the life office would pay the amount of the policy to the person to whom it was assigned. To make the assignment effectual, notice must be given to the head office of the assurance company, and a charge of five shillings is usually made for registering the assignment and acknowledging the receipt of it.

It will thus be seen that, over and above the provision for a family, life policies are of value for various business purposes. It is largely in consequence of the uses they may be put to in such ways that the conditions as to

suicide, for instance, are more liberal when a policy has been assigned for *bond fide* consideration than they are when the estate of the assured is alone interested.

The following is a common form of assignment:—

“I, John Robinson, of No. 600, Strand, London, in the County of Middlesex, gentleman, in consideration of the sum of                      Pounds paid to me by Edward Jones, of Brighton, in the County of Sussex, jeweller, the receipt of which I hereby acknowledge, do hereby, as beneficial owner, assign unto the said Edward Jones, his executors, administrators, and assigns, the policy of Life Assurance upon the life of myself, granted to me by the Assurance Company, assuring the sum of                      pounds and numbered                      and bearing date the                      day of                      , 18                      , and the sum of                      pounds, assured thereby and all other moneys, benefits, and advantages to be received thereunder. In witness whereof I have hereunto set my hand and seal this                      day of                      18                     

“Signed, sealed, and delivered by the above-named John Robinson in the presence of  
Ezekiah Smith,  
Bookseller,  
250, Fleet Street,  
London.

} JOHN ROBINSON (SEAL).”

The full name, address and description of the vendor and purchaser must be inserted.

The actual amounts paid and assured must also be stated.

The deeds (like all deeds or instruments under seal) should be executed by the vendor signing, in the presence of a witness of sufficient age and understanding, his usual

signature against the seal, as shown above; and then placing his finger on the seal, and saying, "I deliver this as my act and deed." The witness should then sign, adding his name, address and description, as shown above.

It is not essential that the purchaser should execute the deed.

The deed must be stamped before, or within thirty days after, execution, with an impressed revenue stamp varying with the amount of the purchase-money, or consideration, the same as for conveyances.

### LOANS ON REVERSIONS.

Besides making loans on personal security, accompanied by the security afforded by policies, many life offices are prepared to purchase reversions and life interests or to make loans upon the security they afford. In such cases the contingencies of life form an inherent part of the security provided, and are peculiarly suitable matters to be dealt with by assurance offices. As previously explained on page 82, the mortality of individual lives is uncertain in the extreme, though the mortality prevailing among a large number of lives may be counted upon with considerable exactness; consequently, such securities as reversions and life interests which depend upon the duration of individual lives are highly speculative when dealt with singly, but cease to be so in the case of a corporation dealing with large numbers of lives.

Many offices have in the past made large profits out of this class of investment, and they still on the whole yield better returns than most other securities which are, for an insurance company, of an equally satisfactory character from the point of view of security.

**EXEMPTION FROM INCOME TAX.**

The premiums paid for life assurance are allowed to be deducted from a man's income in fixing the amount upon which income tax has to be paid. The amount to be so deducted must not exceed one-sixth of the whole amount chargeable for income tax. This deduction does not entitle the assured to exemption from tax should his income after deduction be less than £160, if without deduction of premium it exceeded that amount. Nor if income without deduction exceeded £400, and with deduction fell short of it, would the relief of £160 allowed to incomes under £400 be admitted in consequence of the deduction of premiums reducing the income below £400; and similarly with incomes of other amounts.



## MAKING A CLAIM.

We have now dealt with the principal points connected with the taking and maintenance of a policy. It remains to consider the questions that arise when it is necessary to make a claim upon the assurance company for payment.

If the claim is under an endowment assurance policy during the life of the assured, the process is very simple. Evidence of identity and of title is alone necessary, and these are usually available without any difficulty or formality.

If the age has not been previously admitted it must now be proved (*see* p. 158).

When the claim arises in consequence of the death of the assured, the company must be satisfied that the person assured has died, and that the claimant is entitled to receive the assurance money.

Life offices always offer every facility in regard to these matters, and freely give information and assistance, so it is not necessary to dwell upon them in much detail.

It is usual to require a burial certificate or other evidence of death, a doctor's certificate of death and its cause, and evidence that the person whose death is proved was the person assured.

Difficulties sometimes arise where proof of death is not forthcoming, as where a person has not been heard of for several years, or when a ship, in which he was known to be, is lost and no news is received of any on board. Such cases have to be dealt with in special ways.

It is also necessary to prove that the person claiming is entitled to be paid. The following instructions issued by

a life office explain this point clearly and need no comment:—

### INSTRUCTIONS AS TO PROOF OF TITLE.

The documents necessary to establish the title of the claimant, such as the probate of will, letters of administration, deed, or deeds of assignment, settlement, etc., must be transmitted to the office of the company for approval some days at least prior to the date on which settlement is to be made.

If an assignment or settlement relate only to the policy under which a claim is made, it will be retained by the company, but if it relate also to other property, an abstract or certified copy of that part of it which has reference to the policy in question, together with the original deed, must be lodged at the office for examination, the former to be retained, and the latter to be returned on the assignee, or trustee, giving an undertaking to produce it to the company whenever required to do so.

If a policy shall have been assigned by way of security or mortgage, it will be requisite on payment of the claim that the signature of the assignor or his representative should be had to the receipt, in addition to that of the assignee.

In cases of bankruptcy, liquidation of affairs, or composition with creditors, office copies of the appointment of the trustees or assignees, or the deed of composition, must be produced.

### IMMEDIATE PAYMENT OF CLAIMS.

Until recent years it was usual for the payment of claims to be delayed till some months after death; but the modern custom is to make payment as soon as possible. ~~Provided everything is in order, claims are frequently paid,~~

within a few days of being made. This is often a great boon to the beneficiaries, and though the prompt payment of claims is now general, an assurer should satisfy himself that the office he selects does not make unreasonable delays in settlement.

## THE SECURITY OF LIFE ASSURANCE.

We have now given a brief account of the main principles upon which life assurance is based: we have considered the various kinds of policies that may be obtained, the conditions upon which they are issued, and the chief considerations that should be borne in mind in selecting the office with which to assure. We have described the methods of taking policies and of making claims, and with the attainment of this last result it might be thought that our task was at an end.

Two points, however, still claim attention. The first deals with the security afforded by life offices for the fulfilment of their contracts. Professor de Morgan said long ago, "there is nothing in the commercial world which approaches even remotely the security of a well-established life office." Perhaps few people outside the assurance world recognise the literal accuracy of this statement. In the first place, it should be remembered that as applied to large numbers of people the rate of mortality is very regular, and may be reckoned upon with certainty, as is explained upon page 82. It follows from this that an assurance company can tell very nearly when its liabilities will mature, and what they will amount to. The other element which enters into life assurance calculations—i.e. interest—may also be foretold with a fair amount of certainty. It follows that a life office can calculate its liabilities with considerable accuracy, hence the position of an assurance company is much more

stable than that of a bank, which may at any time be subjected to a "run" upon it, which may cause considerable inconvenience even if it does not result in failure.

Another consequence of this foreknowledge as to liabilities is that assurance companies can safely make permanent investments of their funds, thereby obtaining the advantage of certain classes of security which institutions like banks are by their very nature debarred from investing in. A further consequence of liabilities being to a large extent postponed, and falling due at distant and known dates, is that they can quite certainly be provided for, and should it happen that for any reason they are likely to be greater than was originally expected, the extra provision can be made gradually without unduly pressing upon anybody concerned.

We have previously mentioned that about 83 per cent. of the total business of assurance companies is effected on the participating plan, which means that the premiums paid are more than sufficient to cover the liabilities, the excess over the actual cost being returned to the policy-holders in the shape of bonuses. This provides a margin that is much more than adequate for any contingency that can happen. Even supposing the company to simultaneously experience an excessive mortality, a great decline in the rate of interest earned, serious losses on investments, and extravagant management, practically the worst that could happen would be a diminution of the bonuses paid to the participating policy-holders. When these points are fully grasped it will be seen that it is almost beyond the bounds of possibility for a life assurance company to fail to fulfil its contracts. It would take many years of disaster to bring about even a cessation of bonuses. In the meantime, a company is bound by law to render to the Board of Trade full particulars as to its liabilities and its conditions;

these returns are published, and are the subject of much criticism and observation, and in the event of the condition of a life office becoming seriously bad, attention would be called to it, while there was time to remedy the evil, and the policies would be reassured with some stronger office, who would provide an adequate guarantee for the performance of the original contracts. There are other considerations of a kindred nature which might be mentioned ; but these will be sufficient to show that the statement quoted above is literally true, and that a life policy originally effected in a sound office is at least as certain of being fulfilled as any contract that could be entered into.

These remarks only apply to companies established on right principles, charging adequate premiums and making proper reserves—points in regard to which a judgment may be readily formed.

Companies working on the assessment system described on pp. 107-110, contain the seeds of their own decay, and are inevitably foredoomed to failure.

The above considerations as to security afford a very strong argument in favour of life assurance. We shall show presently that life assurance is an excellent investment, but it is not sufficient to think only of the interest an investment yields ; it is necessary to take into account the security it affords, and we have no hesitation in affirming that even British Consols are not superior from the point of view of security to life policies in sound British offices. When we remember that shrewd business men, well versed in questions of finance, constantly make investments that turn out badly ; when we call to mind that widows and children are still less able to invest their capital wisely ; when we reflect that the advice of friends as to investments is sometimes biased and often bad, it

is difficult to resist the conviction that at least some portion of every man's estate should consist of life assurance policies. The security afforded by them is as nearly certain as it is possible to obtain ; the results in the case of premature death are lucrative in the extreme, and, as we shall see directly, the return that they yield compares very favourably with the returns that can be obtained from first-class securities.

We have left dealing with this matter till the end of the book because we are sure that if due attention has been paid to the explanations given on previous pages, the conviction will be irresistible, that the security is of the highest order, and the returns of a lucrative nature. Had we made these statements to begin with they might or might not have been accepted as correct by those unacquainted with the subject ; but we have supplied the data upon which any man can form his own opinion, and we are sure that if the explanations given in previous chapters have been understood, it will not be as a mere repetition of what other people say, but as a conviction based upon rational grounds, appealing with irresistible force to the judgment of each individual, that he will repeat of his own knowledge the statement quoted above, that "there is nothing in the commercial world which approaches even remotely the security of a well-established life office."

## LIFE ASSURANCE AS INVESTMENT.

Life assurance as an investment may be thought of in two ways. The method most frequently adopted is to pay annual premiums, and we shall endeavour to show what sort of a return may be expected from investing annually a certain amount. Life assurance is also a satisfactory security for the investment of principal. We will consider both aspects of the subject.

If we take a whole-life participating policy and assume that a bonus will be paid at the rate of 30s. per cent. per annum, we obtain the result given in the following table, for various periods of duration and different ages at entry. A bonus of 30s. per cent. is quite a moderate estimate, and very many offices are giving, and are likely to give, larger bonuses than this. We also give in the Table the results upon endowment assurance policies, which are payable at the end of twenty years or at death should it occur previously. In both cases the figures are appreciably below the best that can be obtained at the present time; but we prefer to understate rather than overstate the results. We give in the Table the amount assured in the event of death by the payment of a premium of £100 a year, and in the case of endowment assurance policies the amount that would be paid at death should it occur within twenty years, or that is payable to the assured himself should he survive to the end of the endowment period. For the purpose of



comparison we state in the lower part of the Table the sum that £100 a year would amount to if invested at compound interest at various rates.

Table comparing the Investment of £100 per annum in Whole-Life Assurance, Endowment Assurance, and at Compound Interest.

Nature of Investment.	1 year in force	5 years in force.	10 years in force.	15 years in force.	20 years in force.	25 years in force.	30 years in force.	35 years in force.	40 years in force.	45 years in force.	50 years in force.
Whole-Life Policy effected at age	£ 204,938	£ 5,309	£ 5,709	£ 6,132	£ 6,592	£ 7,089	£ 7,617	£ 8,193	£ 8,802	£ 9,464	£ 10,174
	304,040	4,344	4,671	5,018	5,394	5,801	6,234	6,704	7,202	7,745	8,326
	403,069	3,300	3,548	3,812	4,098	4,407	4,735	5,093	5,471	5,883	6,324
	502,200	2,364	2,541	2,731	2,936	3,158	3,393	3,650	3,921	4,216	—
20-Year Endowment Assurance effected at age	£ 202,026	£ 2,176	£ 2,342	£ 2,516	£ 2,704	—	—	—	—	—	—
	301,995	2,145	2,306	2,478	2,664	—	—	—	—	—	—
	401,905	2,048	2,202	2,366	2,543	—	—	—	—	—	—
	501,770	1,903	2,016	2,198	2,363	—	—	—	—	—	—
Compound Interest annually at	2½% 103	539	1,148	1,838	2,618	3,501	4,500	5,630	6,909	8,355	9,992
	3% 103	547	1,181	1,916	2,768	3,755	4,900	6,228	7,766	9,550	11,618
	4% 104	563	1,249	2,082	3,097	4,331	5,833	7,660	9,883	12,587	15,877
	5% 105	580	1,321	2,266	3,472	5,011	6,976	9,484	12,684	16,769	21,982

It will be seen that if a man takes a policy at age twenty, and dies within about thirty years, his estate will receive an amount that is equivalent to more than the return of all the premiums paid, accumulated at 5 per cent. compound interest; should he die in the fortieth year after effecting the assurance he would receive about 3½ per cent. compound interest upon his investment, and even after fifty years the rate of interest received would exceed 2½ per cent.

A man effecting a policy at age thirty would have made an investment at more than 5 per cent. compound interest if he died within five-and-twenty years, and at more than 2½ per cent. if he died within forty years.

If the policy were taken at age forty the return would exceed 5 per cent. in the event of death within

twenty years, and would exceed  $2\frac{1}{2}$  per cent. if death occurred within thirty years; while even at age fifty more than 5 per cent. interest would be yielded should death occur within fifteen years, and more than  $2\frac{1}{2}$  per cent. should it occur within twenty years.

In looking at this table it is very important to bear in mind that the rates of interest here talked of are in addition to the value of the assurance protection afforded from the outset. Thus, if a man aged thirty pays a premium of £100 and dies within the first year, his estate receives more than £4,000; whereas, had the money been invested elsewhere, the utmost that would have been payable would be £104 or £105. It cannot be too strongly insisted that this assurance protection has an actual and definite value. Suppose a raffle to be got up for a sovereign, in which there were twenty shares at one shilling apiece. It is obvious that each of these twenty shares, having an equal chance of winning, is mathematically worth one shilling; and the result of the raffle, which gives the sovereign to the holder of one share, and nothing to the holders of the nineteen other shares, in no way alters the fact that before the raffle took place each of the shares was worth one shilling.

It is precisely the same with life assurance. The assurance protection is mathematically worth the net premium shown on pages 24 and 25 in columns 4 or 5. The only variation from the truth of this statement is that the mortality experience and the rate of interest earned might be slightly different from the mortality and interest shown in that table, and consequently the actual amount of the value of the assurance protection might be slightly, but only slightly, different from that given. Of course, the commercial value of the assurance protection is greater than is there stated, inasmuch as in business matters nobody can be assumed to work for nothing, and some,

addition should properly be made for expenses. Strictly speaking, therefore, the cost of this assurance protection should be deducted before calculating the interest yielded upon investments in life assurance.

It must also be borne in mind that individuals can practically never obtain compound interest upon their money at the full rate that their investments nominally yield. A man investing such an amount as £100 a year would have considerable difficulty in finding each year satisfactory channels in which to place his £100, together with the interest earned upon his invested capital; should a delay of one or two months occur in making the investment, it would appreciably reduce the rate of interest yielded, while those people are few and far between who would systematically invest in this way a regular amount in the absence of the stimulus afforded by a fixed date for payment.

If we examine the results shown in the above table for endowment assurance, it will be seen that should death occur within fifteen years every policy-holder would receive the premiums paid accumulated at more than 5 per cent. compound interest, with the exception of the man aged fifty, whose return would be very slightly less than 5 per cent. At the maturity of the policy the cash returned would in most cases exceed  $2\frac{1}{2}$  per cent., in addition to which there has been the chance of obtaining a much larger return by previous death. The mathematical value of this chance—that is to say, the net premium for endowment assurance for twenty years by the  $H^m$  table, with 3 per cent. interest—is for each thousand pounds assured—

Age 20 at entry	...	...	£40	2s.	10d.	per annum.
Age 30 at entry	...	...	£11	6s.	7d.	"
Age 40 at entry	...	...	£13	14s.	7d.	"
Age 50 at entry	...	...	£19	13s.	7d.	"

Life assurance as investment may be looked upon in yet another way. A man may have plenty of money, and yet experience considerable difficulty in finding lucrative investments that are at the same time accompanied by adequate security. In such a case he may advantageously combine life assurance with investment in annuities, thereby securing from the outset a fair return upon his capital, accompanied by complete security. There are two principal ways in which this may be done. Suppose a man aged forty has £10,000 which he wishes to invest. He may invest £4,370 in the purchase by a single payment of a life assurance policy for £10,000 without participation in profits, which will be paid at his death. He has £5,630 left, with which he may buy an annuity of £371 per annum, which will yield him £3 14s. 2d. per cent. upon the £10,000 he has invested. Examples of what may be done in this way are given in the following table :—

Table showing result of taking Whole-Life Non-participating Policy by Single Premium and an Annuity to yield Income on Total Amount Invested.				
Items.	Age 20 at entry.	Age 30 at entry.	Age 40 at entry.	Age 50 at entry.
	£	£	£	£
Amount Invested ... ..	10,000	10,000	10,000	10,000
Single Premium for Policy	3,100	3,580	4,370	5,310
Balance ... ..	6,900	6,420	5,630	4,690
Annuity bought by balance	375	379	371	358

Non-participating policies have been chosen to illustrate this class of investment, for although participating policies would probably yield a better return, the income obtained from the investment is larger at the outset from non-participating policies, and there is no element of uncertainty about the transaction.

The investment of principal may be carried out in another way. Suppose as before that the sum to be invested is £10,000. A policy may be taken subject to the payment of an annual premium and the bulk of the capital invested in the purchase of an annuity; part of the annuity is employed to pay the annual premium, and the remainder is available as income from the money invested. The best immediate return from an investment of this sort may be obtained by taking a policy on the discounted bonus system described on page 77, under which there is a probability of the face value of the policy being slightly increased and very little chance of the face value of the policy being decreased. The following table shows about the best results that may be expected from a policy of this sort :—

Table showing result of taking Whole-Life Discounted Bonus Policy by Annual Premiums and an Annuity to yield Income and pay Premiums.				
Items.	Age 20 at entry.	Age 30 at entry.	Age 40 at entry.	Age 50 at entry.
Amount Invested ... ..	£ 10,000	£ 10,000	£ 10,000	£ 10,000
First Annual Premium ...	145	182	240	340
Balance ... ..	9,855	9,818	9,760	9,660
Annuity bought by balance	536	580	643	738
Deduct Annual Premium ...	145	182	240	340
Income from Investment ..	391	398	403	398

It is obvious that various kinds of policies may be combined with annuities in this way: for instance, if a man is content to receive a smaller income for ten or twenty years he may take a policy subjected to a limited number of premiums (*see* p. 86-90), which will absorb a

larger proportion of the annuity than if the premiums were payable for the whole of life, with the result that the income is smaller to commence with, and larger after the payment of premium ceases.

Investment in life assurance affords in one important respect a happy contrast to investments in general. Usually the maxim is true which associates good interest with bad security, but in life assurance it is almost universally the case that good bonuses mean good security, especially if the bonuses have been maintained at a high rate for many years. This is, of course, due to the profits being divided among the participating policy-holders, and to the surplus being large owing to wise investment of funds, careful selection of lives, and economy in management. These, in connection with reserves of a stringent nature, are the cause of the exceptional state of things which exists in life assurance, whereby the maintenance of good returns is an all but certain proof of good security.

## CONCLUSION.

The results that life assurance yield can only be obtained by co-operation. It is recognised on all hands that any man is foolish who, in a civilised community, attempts to live his life alone. Co-operation is necessary for travel, for newspapers, for banking, for food, for every detail of life. Co-operation is no less necessary for dealing with those two great factors in life—mortality and money; and life assurance alone fully applies the principle of co-operation to these two matters, from the influence of which no individual can escape.

We have no desire to put the subject of life assurance on other than business grounds. Treated strictly as a business matter, it is beyond all question a most valuable and necessary institution. As such it may safely be left to any reasonable man to judge it, but at the same time the fact cannot be ignored that there are many thousands of people to whom life assurance is an imperative duty, dictated by every consideration by which civilised people profess to be governed. This aspect, however, we prefer to leave for each individual to decide about for himself; it is enough for us to point out that in no other way can such results be obtained as by co-operation in life assurance, when security, return upon investment, and the actual commercial value of assurance protection are duly taken into account.

There is much more that one interested in assurance would like to add; but it is necessary to set some limits to this book. It has already extended to a larger size than was originally contemplated; but it contains nothing we would willingly leave out.

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# APPENDIX.

*(See Preface, p. XVI )*

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# ALLIANCE ASSURANCE COMPANY.

## Constitution.

The Company was established in the year 1824, and its affairs are regulated by Act of Parliament and by laws and regulations passed by the members.

## Capital and Reserves.

The subscribed Capital of the Company is £5,000,000, of which £550,000 is paid up. The total Funds of the Company exceed £4,000,000 exclusive of uncalled Capital.

## Rates of Premium.

The Rates of Premium are very moderate in respect of all classes of Assurances.

SPECIMEN TABLE.

Age next Birth-day.	Whole Life Assurance.		Endowment Assurance at 60.	
	Annual Premium per cent.		Annual Premium per cent.	
	With Profits.	Without Profits.	With Profits.	Without Profits.
25	£ s. d. 2 3 6	£ s. d. 1 16 3	£ s. d. 2 15 7	£ s. d. 2 7 9
30	2 8 9	2 0 9	3 6 4	2 17 7
35	2 15 7	2 6 10	4 1 6	3 11 5
40	3 4 5	2 17 0	5 4 5	4 12 4
50	4 10 9	3 19 9	11 0 4	9 18 5
60	6 17 1	6 4 11	—	—

## Basis of Actuarial Valuations.

The last Actuarial Valuation was made on the 31st December, 1893, on the basis of the Institute of Actuaries'  $H^m$  and  $H^{m(5)}$  Tables assuming interest at 3 per cent. Notwithstanding the very strong reserves thus made, the sum divided among the participating Life Policy-holders represented an average bonus addition at the rate of £1 10s. per cent. per annum on the sum assured.

## **Alliance Assurance Company.**

### **Bonuses.**

Bonuses are declared at fixed intervals of five years. In the allocation of Profits in respect of participating Policies issued subject to the existing Rates of Premium the Compound Reversionary Bonus System will be adopted—namely, a system providing a Reversionary Bonus for each Premium paid since the last preceding distribution, and calculated on the sum assured and existing Bonus additions. The rate of Bonus addition will be the same for all classes of participating assurances which are subject to the existing Rates of Premium.

The next Bonus will be declared early in the year 1899.

### **Interim Bonuses**

Are allotted in the case of claims under participating Policies of not less than five years' duration.

### **Conditions of Assurance.**

The conditions of Assurance are most favourable to the Policy-holders. Policies are Whole World and Indisputable. Lapsed Policies may be reinstated on very favourable terms without fresh medical examination, and the surrender values of such Policies as are not reinstated are not forfeited, but are applied in keeping the assurances in force.

### **Expenses of Management.**

The expenses of management, including commission, chargeable to the Life Department, are limited to 10 per cent. of the Life Premium Income.

### **Death Duties.**

In order to enable the owners of property to provide for the payment of the Estate Duty, special forms of Policies have been prepared under which the Policy

## **Alliance Assurance Company.**

moneys, or such portion thereof as may be needed for the purpose, shall be paid direct to the Inland Revenue Office without waiting for production of Probate.

### **Various Forms of Life Assurances.**

The following, among other Forms of Assurance, are granted, and Tables of Rates may be obtained on application to the Company :—

1. Assurances for the Whole of Life at uniform rates of Premium.
2. Assurances for the Whole of Life at reduced rates for first five years.
3. Assurances for the Whole of Life, secured by a single Premium only, or by Annual Premiums for a fixed number of years.
4. Assurances payable at a fixed age, or earlier in case of death.
5. Short term Assurances.
6. Joint Life Assurances.
7. Assurances payable at death of survivor of two or more lives.

### **Other Branches of Business.**

In addition to **Life Assurance** of various descriptions, the operations of the Company embrace :—

1. The granting of **Annuities**.
2. **Fire Insurance**.
3. The granting of **Leasehold, Investment, and Capital Redemption Policies**.

A Copy of the Company's detailed Prospectus, giving full particulars of the rates of premium for Life Assurance and other information, may be obtained on application to any of the Company's Offices or Agents.

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**Head Office: 1 & 2, Bartholomew Lane, London, E.C.**

# ATLAS ASSURANCE COMPANY.

## Constitution.

The Atlas Assurance Company was founded eighty-eight years ago, for the transaction of Fire and Life Assurance, with a capital of £1,200,000 guaranteed under a Deed of Settlement by a numerous and wealthy proprietary. The paid-up capital is £144,000.

## Security.

In addition the Company has assets exceeding £2,000,000, of which over £1,480,000 belong exclusively to Life policy-holders, and are applicable to no other purpose whatever.

## Valuation.

At the last Quinquennial Valuation made as on 31st December, 1894, the most stringent tables of mortality, viz., the Institute of Actuaries  $H^m$  and  $H^{m(s)}$  Tables, were employed, the rate of interest adopted being the exceptionally low one of  $2\frac{1}{2}$  per cent. for the With-Profit Assurances, and 3 per cent. for the Non-Profit Policies. Every precaution is therefore taken to ensure to Atlas policy-holders absolute security, which is the first and paramount consideration in regard to Life Assurance contracts.

## Bonuses.

The bonuses declared have always been large, and the exceptional stringency of recent valuations makes the continuance of such bonuses more probable. The last bonus was at the rate of £1 8s. per cent. per annum on the sums assured and existing bonuses for each

## Atlas Assurance Company.

annual premium paid during the preceding five years, which is equal to a simple bonus—*i.e.* a bonus on sums assured only—of £1 13s. 5d. The following table illustrates the bonus additions at this rate on a policy for £1,000 :—

5 years in force ...	...	£1,070	0s.
10     "     "     ...	...	£1,144	18s.
20     "     "     ...	...	£1,310	16s.
30     "     "     ...	...	£1,500	14s.
40     "     "     ...	...	£1,718	4s.
50     "     "     ...	...	£1,967	3s.

Policies are entitled to participate in bonuses from the commencement. The same rate of bonus is declared on Endowment Assurances as on Whole-Life Policies.

### Interim Bonuses,

at the rate of 80 per cent. of the bonus declared at the last preceding valuation, are added to policies which become claims between two divisions of profit.

### Cost-Price Policies,

giving policy-holders the immediate benefit of future bonuses. Under this plan future Reversionary Bonuses have been assumed at the rate of £1 7s. 6d. per cent. per annum upon sums assured and accrued bonuses, and are allowed by way of discount upon the ordinary With-Profit premiums; the policies are subject to a provision that if future bonuses be at a higher rate than that discounted the difference shall be added to the sum assured, but if at a lower rate then the difference shall be deducted. The Cost-Price premiums are much lower than those under the

## **Atlas Assurance Company.**

ordinary With-Profit tables, and even appreciably less than those usually charged for non-participating policies.

### **Double Endowment Assurances.**

In addition to the benefits of an ordinary Endowment Assurance these policies secure a guaranteed bonus equal to the sum assured, should the life assured survive the period at which the endowment matures.

### **Renewable Term Policies.**

Under this plan Term Assurances are granted with the option of renewal without fresh medical examination, the premium gradually increasing with the increasing age of the life assured, or the premium remaining stationary and the sum assured being gradually reduced. Thus a large immediate assurance is secured by a very small premium. Renewable Term Policies may be changed for ordinary Whole-Life or Endowment Assurance, without medical examination, at any time before the life assured reaches the age of sixty-five.

### **General Privileges.**

**Unconditional Whole-World Policies.**

**Liberal Guaranteed Surrender Values.**

**Non-Forfeiture Regulations.**

**Immediate Payment of Claims.**

**Chief Office : 92, Cheapside, London, E.C.**

# BRITISH EMPIRE MUTUAL LIFE ASSURANCE COMPANY.

## Constitution.

The Company was established in 1847 upon the Mutual System. All the Profits belong to the members, whilst no personal liability attaches to them.

## Valuation and Bonus.

Valuations have in the past been made every three years. In the future they will be made on 31st December, 1896, 1899, 1901, and thereafter every five years. The Bonuses are distributed according to the methods determined by the Directors. Bonuses at the last distribution varied from £1 to £2 6s. per cent. per annum on the sum assured.

## Progress.

The following figures speak for themselves :—

ACCUMULATED FUND		ANNUAL PREMIUM INCOME	
Dec. 1856	£121,548	1856	£14,541
" 1876	655,665	1876	99,274
1896 UPWARDS OF	£2,400,000	1896 UPWARDS OF	£260,000

## Policy Conditions include the following privileges :

Wide Free Limits of Foreign Residence.

Indisputable World-wide Policies.

Non-forfeiture Regulations.

Immediate Payment of Claims.

## Special Schemes.

In addition to all the ordinary classes of Assurance generally transacted by Life Offices, this Company has the following special schemes, full particulars of which will be furnished on application.

Early Assurances for Children on a Novel and Attractive Basis, without Medical Examination, at Exceptionally Low Premiums.

Long Term Assurances, with Option of Continuance.

Six per cent. Investment Policies.

## General Advantages.

Low Premiums.

Liberal Surrender Values.

Invalid Lives Insured on Equitable Conditions.

Naval and Military Officers' Risks on Advantageous Terms.

Temperance Section yielding Increased Bonuses.

**Head Office : 4 & 5, King William Street, E.C.**



# BRITISH EQUITABLE

## ASSURANCE COMPANY.

### **Constitution.**

The British Equitable Assurance Company was founded in 1854 on an exceptional plan, whereby the privileges of a Mutual Society are combined with the advantages of a Proprietary office. The Company's business comes under two departments (1) Mutual and (2) Non-Participating.

### **Mutual Assurance.**

The current expenses of working the Company are assessed rateably on the premiums received in the Mutual Life Assurance Department and the General Premiums; and the entire profits made by the Company in the Mutual Department, after deducting the expenses assessed thereon, are divided among the Policy-holders, without any deduction for a Reserve Fund: the protection afforded by a Reserve Fund being in this Company provided by the Shareholders' capital. The Policy-holders thus obtain all the advantages offered by a Mutual Society: the Shareholders' profits consisting only of interest upon their paid-up capital and capitalised profits, together with such profits as may arise from business transacted under Non-participating Tables.

### **Absolute Security.**

The Policy-holder enjoys absolute security. Strong reserves—sufficient to provide for every possible contingency—have been created by the employment, in the Valuations, of the Institute of Actuaries' (Healthy Males) Mortality Tables deduced from the mortality experience of Life Assurance Companies, and by bringing into account, in respect of profits on the bulk of the Policies, interest at  $3\frac{1}{2}$  per cent. per annum only, as the prospective earning of the Accumulated Fund, whereas that Fund is invested so as to earn, on

## **British Equitable Assurance Company.**

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the average, over 4 per cent. per annum. The Shareholders' capital, which is a guarantee to the Policyholders without being a source of expense, is a quarter of a million. The Accumulated Fund is upwards of a million and a half.

### **Options in Applying Profits.**

The Policy-holder has the option, when assuring for the whole term of life, of having his profits, which are declared every five years, added as a bonus to the sum assured, or applied in reduction of future premiums, so as to make the Policy payable in his lifetime.

### **Separate Use Policies.**

The amount assured can be secured to the separate use of a wife, saving Estate Duty and expenses of obtaining Probate or Administration on the husband's death, by taking out one of the Separate Use Policies issued by the Company.

### **Free Licences.**

The Policy-holder can obtain a free licence to travel and reside abroad within very wide limits, and beyond those limits the Directors will favourably consider applications.

### **Paid-up Policies.**

After three years from the date of a Policy (or, if revived, from the date of revival), it may be exchanged, if unincumbered, for a Paid-up Policy.

### **Loans on Policies.**

The Policy-holder who has not incumbered his Policy can, when it has been three years in force, borrow a sum of money on it with absolute secrecy, and without any expense or trouble.

### **Non-Forfeiture of Policies.**

Under the Company's arrangements, no Policy need

## British Equitable Assurance Company.

be forfeited through inadvertence or temporary inability to pay the premium.

### Immediate Payment of Claims.

Claims are paid immediately after satisfactory proof has been furnished to and approved by the Directors of the death or other event on which the policy is payable, and of the title of the claimant.

### SPECIMENS OF ANNUAL PREMIUMS TO ASSURE £1,000.

#### POLICIES WITH PROFITS

Age next Birth-day.	Payable at Death			Payable at age 60 or Previous Death.		
	Annual Premiums during Life.			Annual Premiums till Maturity.		
	£	s.	d.	£	s.	d.
20	19	0	6	29	15	0
21	19	9	6	30	5	0
22	19	18	11	30	15	10
23	20	8	7	31	5	10
24	20	18	9	31	16	8
25	21	9	4	32	8	4
26	22	0	5	33	0	0
27	22	11	11	33	10	10
28	23	3	10	34	3	4
29	23	16	5	34	15	10
30	24	9	8	35	9	2
31	25	3	2	36	2	6
32	25	17	5	36	16	8
33	26	12	5	37	10	10
34	27	8	1	38	5	0
35	28	4	6	39	0	0
36	29	1	8	44	2	6
37	29	19	9	46	5	10
38	30	18	8	48	13	4
39	31	18	6	51	5	10
40	32	19	4	54	3	4

# British Equitable Assurance Company.

## SPECIMENS OF ANNUAL PREMIUMS TO ASSURE £1,000.

### POLICIES WITHOUT PROFITS.

Age next Birth-day	Payable at Death.	Payable at age 60 on Previous Death.			With guaranteed Bonus of £1,000 if age 60 is attained. Annual Premiums till Maturity.
	Annual Premiums during Life.	Annual Premiums till Maturity.	Annual Premiums for 20 Years		
	£ s. d.	£ s. d.	£ s. d.		£ s. d.
20	17 12 6	22 5 10	31 18 1		31 15 0
21	18 0 10	23 0 0	32 11 8		32 19 2
22	18 10 0	23 15 0	33 4 2		34 4 2
23	18 18 4	24 10 0	33 18 4		35 10 10
24	19 8 4	25 7 6	34 12 6		36 19 2
25	19 17 6	26 4 2	35 6 8		38 10 0
26	20 8 1	27 2 6	36 1 8		40 1 8
27	20 19 2	28 3 4	36 17 6		41 16 8
28	21 10 0	29 4 2	37 13 1		43 13 4
29	22 1 8	30 6 8	38 10 0		45 12 6
30	22 13 4	31 10 0	39 7 6		47 15 0
31	23 5 10	32 15 0	40 5 0		50 0 0
32	24 0 0	34 4 2	41 3 4		52 9 2
33	24 13 4	35 13 4	42 3 1		55 1 8
34	25 7 6	37 5 0	43 3 4		57 19 2
35	26 3 4	39 0 0	44 4 2		61 1 8
36	26 19 2	40 17 6	45 5 10		64 6 8
37	27 15 10	42 17 6	46 8 4		68 2 6
38	28 13 4	45 1 8	47 12 6		72 3 4
39	29 11 8	47 10 0	48 17 6		76 12 6
40	30 10 10	50 2 6	50 2 6		81 10 0

# British Equitable Assurance Company. -

## List of Assets

Forming the Accumulated Fund, January 31st,  
1896 —

Ground Rents, at Cost	£	s	d	£	s	d
Freehold	796	112	19	1		
Leasehold	138	7	39	7	11	
	<hr/>			934	852	7 0
Mortgages on Property				177	817	11 8
Loans on the Company's Policies				71,301	19	7
Government Securities—at Cost				156,937	17	11
Railway Stocks—at Cost				39,708	11	0
House Property				84,091	9	6
Agents' Balances				22,035	10	4
Cash—						
On Deposit	4	000	10	1		
In hand and on Current Account	9,519	3	2			
	<hr/>			13,519	13	6
Other Assets—Sundries				4,475	4	9
	<hr/>			1,507,740	5	2
Less—						
Claims admitted but not paid at date of Account	4,647	8	2			
Other sums owing by the Company to sundry persons	901	11	4			
	<hr/>			5,548	19	6
				<hr/>		
				1,502,191	5	8

## Directors

ALFRED CONDER, Esq, F R I B A	WILLIAM SMITH, Esq
WILLIAM HENRY GOVER, Esq, LL B	ROBERT PARKER TAYLOR, Esq
THOMAS EDMUND HPIFFER, Esq, LL D	EDWARD BEAN UNDERHILL, Esq, LL D
WILLIAM GEORGE LEFMON, Esq, J P	THOMAS HENRY WELLS, Esq

## Auditors

ALFRED HENRY BAYNES, Esq  
MONTAGU HOLMES, Esq, F S I  
ROBERT RAE, Esq

## Manager

JOHN WILKINSON FAIRBY.

Office: Queen Street Place, London, E.C.

# CALEDONIAN INSURANCE COMPANY.

FOUNDED 1805. THE OLDEST SCOTTISH INSURANCE COMPANY.

*Incorporated by Royal Charter and Empowered by Special Acts of Parliament*

## Constitution.

The Company was established as a Fire Office in 1805. The Life Department was added in 1833. The Funds of the Life Department are separately invested, and are not liable for Fire claims.

## Safety of Basis.

The latest valuation (1892) was made on the basis of the Institute of Actuaries' H<sup>m</sup> Table at 3 per cent. interest. The Life Policy-holders have also the security (jointly with the Fire Policy-holders) of the paid-up and subscribed capital.

## Rates of Premium.

These are strictly moderate.

## Bonuses.

The past results have been very satisfactory, especially in connection with the moderate premiums charged. The Bonus last declared was at the rate of £1 7s. 6d. per cent. per annum on the sum assured, being equal on the average to about 50 per cent. on the Annual Premium paid.

## General Advantages.

A complete non-forfeitable system preventing the lapsing of any valuable policy.

Liberal Surrender values.

Policies free from troublesome or restrictive conditions.

Option of applying Bonus to make the assurance payable during Life.

A special scheme of Life Assurance without Medical Examination, affording great advantages to persons who attain a certain age fixed upon at the outset.

Long Term Temporary Assurances, with option of change to ordinary plan.

Edinburgh—19, George Street.

Liverpool—16, Exchange Chambers. | Manchester, 60, Spring Gardens.

Leeds—3, Park Lane. | Birmingham—77, Colmore Row.

Newcastle—30, Mosley Street. | Dublin—31, Dame Street.

Dundee—33, Albert Square. | Aberdeen—13, Bridge Street.

Glasgow—64, St. Vincent Street.

# THE COLONIAL MUTUAL LIFE ASSURANCE SOCIETY LIMITED.

## **Constitution.**

The Society was established in Melbourne in 1873. Branch Offices have since been opened throughout Australia, New Zealand, South Africa, and the United Kingdom, the convenience to members resulting from this extensive representation in British Colonies is much appreciated. The Society is entirely Mutual, there being no Shareholders to participate in the profits or control the Funds or Management. It has adopted in its constitution such features as have been developed by modern science, and have been proved to be practically beneficial.

## **The Valuation of Liabilities**

for the five years ending 31st December, 1894, was made on the same strictly conservative principles as were adopted at previous valuations on the recommendation of the eminent British Actuaries, Dr Sprague, F.I.A., etc., and Mr George King, F.I.A., etc. The Mortality Table adopted was the Institute of Actuaries' H and H', with interest at  $1\frac{1}{2}$  per cent less than was earned upon the funds.

## **Distribution of Bonus.**

The entire surplus is the property of the Policy holders, and is allotted every five years to Policy holders in Class "A," or at the end of the selected Tontine Period to Policy holders in Class "E."

## **Classification of Business.**

Whole Life and Endowment Assurances that participate in profits are granted at very moderate Premiums. Many options are given to Policy holders for dealing with their bonuses at each valuation. Policies entitled to participate in profits, and which become claims between one valuation and another, receive interim bonuses at the same rate as for the last preceding period, this being equivalent to an annual bonus.

**Tontine Policies** are granted at the same premiums as Policies that participate quinquennially; the special feature of this system is that the entire profits of the

## The Colonial Mutual Life Assurance Society Limited.

class are reserved and accumulated at compound interest for the benefit of those Policies which are in force at the end of the Tontine Period, which may be fifteen or twenty years, as selected by the insured. The sum assured, without bonus, is payable in the event of death during the Tontine Period. The choice of six valuable options is available at the maturity of the Tontine Period

**Absolute Insurance Policies** are granted for the whole of life, subject to a limited number of annual premiums, each of which purchases an amount of assurance absolutely unforfeitable even if no further premiums are paid.

**Non-Participating Assurances** for the whole of life or for short terms are granted at reduced rates of Premium  
**Children's Endowments and Annuities** are also granted by the Society.

**Loans on Policies,**  
to the extent of nine tenths of the surrender value, are granted on deposit of Policies

### Investments.

The Funds of the Society are invested wherever the best securities and the best rates of interest are to be found. By its comprehensive organisation the Society obtains the widest scope for remunerative investment. The average rate of interest earned during the Valuation Period 1890 to 1894 exceeded  $5\frac{1}{2}$  per cent.

### Progress of the Society, 1873-95.

FUNDS.		NEW BUSINESS	
DATE.	AMOUNT	PERIOD	SUM ASSURFD.
31 Mar, 1882 . .	£226,868	8 years ended 31 Mar, 1882	£5,036,839
31 Dec., 1888 . .	863,281	31 Dec, 1888	8,206,988
31 Dec, 1895 . .	1,923,835	7 " " 31 Dec, 1895	9,066,831
Policies Issued . .		71,873 assuring	£22,310,658
Amounts Paid to Policy-holders . . .			£1,539,406
Cash Surplus—31st December, 1894,			
Equivalent in reversion to over . . .			£450,000

EDWARD W BROWNE, *Manager.*

Office: 33, Poultry, London, E.C.



# **ECONOMIC LIFE ASSURANCE SOCIETY.**

## **Constitution.**

Founded in 1823. There are no shareholders, the whole of the surplus being quinquennially divided amongst the members, who incur no personal liability.

## **Premiums.**

The ordinary with-profit premiums are lower than those of any other Company or Society offering to the general public similar bonus advantages from the commencement of the risk.

## **Bonus.**

This is distributed every five years on an equitable scale, allowing weight both to age at entry and to the duration of the policy. The bonus is calculated not only upon the original sum assured, but also upon all previous bonus remaining attached thereto, with results specially favourable to good lives.

## **Endowment Assurance**

is granted on very favourable terms. The bonus on this class of assurance is on the same full scale as on the ordinary whole-life class.

## **Security.**

This is undoubted, as the full Board of Trade Returns will show; the Assurance Fund invested in the highest class of securities amounts to more than £3,600,000.

## **Equal Justice to all Policy-holders.**

No unfair advantages are allowed to special classes of the community, either by way of reductions of premium, special commissions, relaxation of medical examination, or discounting of future bonus, which may never be realised. All policy-holders enter on equal terms.

## **The Policy Conditions**

embody all the most modern and enlightened improvements in practice: the best interests of its members being necessarily also the highest interest of a purely Mutual Society.

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**Chief Office: 6, New Bridge Street, Blackfriars,  
London, E.C.**

# ENGLISH AND SCOTTISH LAW LIFE ASSURANCE ASSOCIATION.

## Constitution.

The Association was established in 1839, and transacts Life and Annuity Business only. The subscribed Capital is £1,000,000, of which £930,000 remains uncalled.

The participating Policy-holders enjoy nine-tenths of the Profits on the whole of the Life business, and their share of the Profits derived in the past from the non-participating Policies has exceeded the one-tenth share of the entire Profits falling to the Proprietors. The Assured have practically, therefore, the advantages of a mutual office, without any partnership liability, and the additional security afforded by a Million of Capital.

## Security.

In addition to the security of the Capital above mentioned, the Association has a Fund of upwards of £2,000,000, the Reserves at the last Valuation being based upon (1) Interest at the assumed rate of 3 per cent. only, (2) The Institute of Actuaries'  $H^m$  and  $H^{m(5)}$  Tables; the whole of the difference between the office Premiums and the  $H^m$  3 per cent. net Premiums being reserved for future expenses and profits.

## Bonus.

The Directors have lately given much consideration to the principle adopted in the distribution of Bonus. They have come to the conclusion that in lieu of the system heretofore practised, giving a uniform Reversionary Bonus to old assurers and new entrants alike, the popular Compound Bonus system (under which all bonus additions remaining attached to a policy rank for bonus equally with the original sum assured) shall be introduced as from the 1900 Valuation inclusive, coupled with exclusion, as from .

## **English & Scottish Law Life Assurance Association.**

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1896 inclusive, of the right to participation in Bonus in respect of the first year of Assurance.

The reversionary additions may be commuted, at the option of the parties entitled, at any time for (1) a cash payment, or (2) reduction of premium for five years, or (3) permanent reduction of premium.

Interim Bonus at a relatively liberal rate is allotted to with-profit policies in respect of the quinquennium during which they become claims.

### **Various Modes of Assurance.**

All classes of Life, Endowment, and Leasehold Assurances are undertaken.

Assurance at Specially Low Rates may be secured under this Association's

Discounted Bonus and Enlargeable-Term Tables.

### **Conditions of Assurance.**

Policies simple in form and generally World-Wide and Indisputable.

Guaranteed Surrender Values.

Immediate Payment of Claims.

### **Annuities.**

The Association grants Annuities, Immediate, Deferred, or Survivorship, on favourable terms.

### **Reversions and Life Interests.**

The Association makes advances upon, or purchases (with or without option of re-emption) Reversions, whether absolute or contingent, and Life Interests, either in possession or in reversion, upon liberal terms.

#### **Head Offices :**

London—12, Waterloo Place, Pall Mall, S.W.

Edinburgh—120, Princes Street.

# THE REASON of the SUPERIOR WORTH of THE- EQUITABLE

## LIFE ASSURANCE SOCIETY'S

**POLICIES** is to be found in the following explanations—

### **Constitution.**

The Society, which is familiarly known as THE OLD EQUITABLE, was founded in the year 1762, on strictly mutual principles. It was the first Society to charge premiums varying with the age of the life assured, and is the oldest purely mutual office in existence.

### **The Whole of the Profits belong to the Members.**

The advantage of the mutual system cannot be better illustrated than by using as an example the amount of profit divided amongst the policy holders at the last decennial distribution. This amounted to the large sum of £1,235,827, and as the proportion which is taken by shareholders in Proprietary Companies varies from a tenth to a third,

*The saving to the Members was—*

allowing $\frac{1}{10}$ th, £123,582	allowing $\frac{1}{10}$ th, £308,957
„ $\frac{1}{3}$ th, £227,165	„ $\frac{1}{3}$ rd, £411,942

### **A Reserve Capital which belongs to the Members.**

The Society has a paid up capital larger than that possessed by most of the Proprietary Companies, the dividends on which, instead of being paid to shareholders, go to the members in the shape of increased bonuses. At the latest valuation the amount retained in hand, over and above the Reserve required by the most stringent valuation by the combined H<sup>m</sup> and H<sup>m</sup> (b) 3 per cent Tables, amounted to £584,727, constituting A RESERVE CAPITAL OF OVER HALF-A-MILLION STERLING.

### **No Expensive Agency System ; No Payment of Commission.**

The expenses incurred by Companies which employ Agents vary from 10 to 30 per cent. of the premium.

## The Equitable Life Assurance Society.

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income; and as the expenditure of "The Equitable" is less than  $6\frac{1}{2}$  per cent., it follows that the members benefit to the extent of from  $3\frac{1}{2}$  to  $23\frac{1}{2}$  per cent. on all the premiums received. During the ten years from 1881 to 1889, the total amount received in premiums was £1,488,357, so that for the latest decennial valuation period,

*The further saving to Members was—*

reckoning expenses at 10 per cent.	£52,092.
"              "          15      "	£126,510.
"              "          20      "	£200,928.
"              "          25      "	£275,346.
"              "          30      "	£349,764.

As the average rate of expenditure of all the British Companies is 15 per cent. of the premium income, the saving under this head alone amounted on the average to £126,000, or more than 10 per cent. of the whole of the profits.

### Past Results :—A Wonderful Record.

One of the safest guides to future achievements is the result of past experience.

### NINETY-FIVE YEARS' RECORD.

During the Ninety-five years ended December 31st, 1895—

The Premiums received amounted to...	...	£25,264,906
And the Society paid—		
In Claims under its Policies .. ..	...	19,871,539
In Bonuses ... ..	...	22,319,929
As Surrender Values ... ..	...	2,180,886
In Annuities ... ..	...	159,370
 Total Payments ... ..		 £44,531,724
 And had Invested on December 31st, 1895 ...		 £4,285,285

So that over the whole of that period for every £1,000 that became a claim the Society paid, on the average, in amount assured

## The Equitable Life Assurance Society.

and bonus **£2,123**; and the Members or their relatives received, on the average, a return of **£176** for every **£100** paid in premiums.

Out of 113 Policies which became claims in the year 1895, the sum assured and bonus together

In 1 case Exceeded Four Times	}	the Original Amount Assured.
In 20 cases Exceeded Three Times		
In 56 cases Exceeded Twice and		
In 33 cases, or three-fourths of the whole, Exceeded One-and-a Half Times		

The Society publishes a complete list of the claims paid in the preceding year.

### Results of the Latest Valuation.

The Bonuses declared on the 1st January, 1890, ranged from £2 per cent. to £10 12s. per cent. per annum on the sum assured for every year *completed* since the previous valuation, varying according to the time the policy had been in force. The following table shows the additions made to policies for £1,000, together with the Bonuses declared at previous divisions, and the total amounts payable at death.

#### ORIGINAL SUM ASSURED, £1,000.

Year of Assurance.	Amount of Sum Assured and Bonuses at 1st January, 1880	Bonus added at 1st January, 1890.	Total Amount of Policy with its Bonuses on 1st January, 1890.*
	£ s	£	£ s.
1820	3,175 0	1,060	4,235 0
1830	2,575 0	920	3,495 0
1840	2,200 0	820	3,020 0
1845	2,015 0	760	2,775 0
1850	1,905 0	720	2,625 0
1855	1,795 0	680	2,475 0
1860	1,537 10	580	2,117 10
1865	1,350 0	480	1,830 0
1870	1,180 0	380	1,560 0
1875	1,080 0	280	1,360 0
1880	1,000 0	180	1,180 0
1884	—	100	1,100 0

Increased by the INTERIM BONUS of £2 per cent. in respect of each Premium paid after the 1st January, 1890.

## The Equitable Life Assurance Society.

### As a Cash Investment the Policies have been Profitable.

Had a policy-holder who entered at the age of 30 taken his profits in cash, he would have received from  $4\frac{3}{4}$  to  $4\frac{8}{8}$  per cent *compound interest* on his premiums as an investment, and have still been assured for the full amount of his policy.

### Cash Value of the Decennial Reversionary Addition made to a Policy of £1,000, 1st January, 1890.

Age at Entry	Premiums paid in Decennium	POLICY IN FORCE			
		10 Years	20 Years	30 Years	40 Years.
	£	£ s. d.	£ s. d.	£ s. d.	£ s. d.
20	218	70 14 6	172 10 0	306 8 0	441 19 6
30	267	81 14 6	200 15 0	356 0 6	516 3 0
40	340	95 1 6	233 5 6	415 15 6	591 8 6

It will be seen that in the case of a person who entered at the age of 30, and had been assured 20 years, the Cash Payment he received amounted to a return of not less than 75 per cent of the Premiums paid in the decennium, and that a person who entered at the same age, and had been assured for 30 years, received *one third more than the Premiums paid* in the decennium.

### Large Surrender Values.

As the Society has no large initial outlay connected with the issue of a policy, such as the maintenance of Branch Offices or the payment of procuration fees to Agents, it is able to allow to its members, wishing to withdraw, the full value of their policies, *even after only one premium has been paid*. This is a matter of great importance, and too frequently overlooked by persons when they insure their lives.

# The Equitable Life Assurance Society.

## SURRENDER VALUES

*(At the Date of the latest Division of Profits)*

Of Ordinary Whole-Life With-Profit Policies for £1,000, with the total accumulated Bonus additions; and the equivalent Fully Paid-up Policies payable at Death.

Age at Entry.	DURATION OF POLICY IN YEARS							
	10 Years.		20 Years.		30 Years.		40 Years.	
	Cash Value.	Paid up Policy.	Cash Value.	Paid up Policy.	Cash Value.	Paid up Policy.	Cash Value.	Paid up Policy.
<b>20</b>	£ 173	£ 361	£ 495	£ 919	£ 996	£ 1,636	£ 1,566	£ 2,282
<b>30</b>	212	393	591	971	*1,165	*1,698	1,827	2,358
<b>40</b>	261	428	704	1,026	1,378	1,779	2,097	2,437
<b>50</b>	320	466	858	1,108	1,606	1,866	—	—

\* Thus, the man who assured at the age of 30 for £1,000 could, in 30 years' time (that is at the age of 60), receive a cash payment of £1,165, or a Paid-up Policy of £1,698 (which would share in future Profits), having paid in Premiums the sum of £501.

## Loans on Policies.

Advances are made at short notice on the security of the Society's Policies, when not in the hands of Trustees, and when the title is unencumbered, to nearly the full extent of their surrender value, and may be repaid at any time without notice.

Policies are Whole World, except in special cases, and are practically INDISPUTABLE, except when obtained by deliberate fraud.

For further particulars and every information, address—

**H. W. MANLY, Actuary, Equitable Life Assurance Society,  
MANSION HOUSE STREET (opposite the MANSION HOUSE),  
LONDON, E.C.**



# **EQUITABLE LIFE ASSURANCE SOCIETY OF THE UNITED STATES.**

## **Constitution.**

This Society was organised in 1859 under the Insurance Law of the State of New York, with the following distinct provision in its charter.—“The Insurance business of this Company shall be conducted upon the Mutual plan.” The affairs of the Society are conducted by a corps of Executive Officers and a Board of Directors.

## **Government and State Supervision.**

The Society transacts its business under the supervision of the New York Insurance Department. This department exacts the most rigid accounts, and its officers not only closely scrutinise these accounts, but also publish a report, addressed to the Legislature of the State, based on their independent investigation. The State also regulates the loans on mortgages, and declares the securities in which life offices may invest. The Society also makes returns to the British Board of Trade as required by the Life Assurance Companies' Acts.

## **British Branch.**

The British Branch was established in 1867, and is so organised that it is in effect a local office. Proposals are accepted in London, and all claims are paid in London with quite exceptional promptitude. A deposit of £100,000 is held at the Bank of England in the name of Trustees, as a special security for the Society's British Policy-holders.

## **Security.**

The Policy-holders of this Company not only have the guarantee provided by Government supervision and the Trust Deposit for British Policy-holders, but the Funds of the Society, amounted at December 31st, 1895, to £41,576,062, and its assets exceeded its liabilities.

## **Equitable Life Assurance Society of the United States.**

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by £8,422,502. This surplus is larger than that of any Insurance Company in the world, and is the most convincing proof of financial stability and strength.

### **Satisfied.**

The nature of the Society's Policies, and the liberal treatment of its Policy-holders, is fully appreciated by the recipients of benefits made under its Policies. Their testimony may be seen from a collection of letters published under the title of "Satisfied," which may be had on application.

### **Policies.**

The Equitable Society U.S. has been, and still is, the pioneer in the issue of liberal and advantageous Policies incorporating every modern improvement.

The Free Tontine Policy provides :—

Protection at a low rate of Premium ;

Terminable Assurance after 20 years ;

Accumulated Tontine Bonus after 20 years ;

Various valuable Options at the end of Tontine period.

The Endowment Policy has for its special features :—

Investment a Distinctive Element ;

Assurance Protection for 20 years ;

A Return of all Premiums with Compound Interest ;

Valuable Options after 20 years.

### **A New Policy.**

The Guaranteed Cash Value Policy which has just been issued by the Society inaugurates a new era in the history of the Equitable United States. This policy, amongst other fresh and striking characteristics guarantees Definite Cash Values, Definite Loans, Definite Paid-up Assurance.

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**Head Office for the United Kingdom: 6, Princes Street, Bank, London, E.C.**

**A. MUNKITTRICK and W. THIGGS, General Managers.**

# EQUITY AND LAW LIFE ASSURANCE SOCIETY.

## Constitution.

The Equity and Law Life Assurance Society was established in 1844 with a Capital of One Million, divided into 10,000 shares, held entirely by members of the legal profession. The Dividend of this Capital is provided by the interest yielded by its investment, and by one-tenth of the profits declared at each quinquennial division. The Assured have, in return for this one tenth, the guarantee of a large and wealthy proprietary; but *as the profits arising from the non-participating Policies exceed the one-tenth of the profits belonging to the Shareholders, the Assured have all the advantages of a Mutual Society.*

The Accumulated Funds on 31st December, 1895, amounted to  
£2,930,963.

**The Valuation of Liabilities** under Policies is made on the Institute of Actuaries' Tables [ $H^m$  and  $H^m(5)$ ], assuming interest at the low rate of  $2\frac{1}{4}$  per cent.

**The Economy of Management** is evidenced by the fact that expenses have averaged about 10 per cent of the Premium Income, and for the year 1895 they were slightly under this figure.

**Bonus Results**, on with-profit Assurances of £1 000 for the whole of life up to the recent Valuation as at 31st December, 1894, have shown the following results:—

Age at Entry.	NUMBER OF PREMIUMS PAID									
	Five.	Ten.	Fifteen.	Twenty.	Twenty-five.	Thirty.	Thirty-five.	Forty.	Forty-five.	Fifty.
	£ s	£ s	£ s	£ s	£ s	£ s	£ s	£ s.	£ s	£
30	1,048 10	1,165 0	1,301 0	1,421 10	1,550 10	1,725 10	1,915 10	2,148 10	2,342 0	2,570
40	1,054 10	1,186 0	1,338 0	1,472 10	1,631 10	1,828 0	2,050 10	2,328 0	2,551 10	2,814
50	1,065 0	1,223 10	1,405 10	1,567 10	1,762 0	1,995 10	2,267 0	2,596 0	2,866 10	..

In the cases marked \* the Bonuses, if surrendered, would be more than sufficient to extinguish all future premiums, and the Policy holders would still be entitled to share in future profits.

## Various Policies Issued.

Assurances under Table III. of Prospectus are especially adapted to the requirements of Marriage

## **Equity and Law Life Assurance Society.**

**Settlements.** Under this Table all Bonuses are applied in Reduction of Premium until extinction, thus affording the assured full benefit of the Bonus. The rates are slightly lower than those in Table I.

**Reduced Payment System.**—This system has been devised in order to meet the want expressed by many persons for a large amount of assurance combined with a small amount of premium. The scheme provides an assurance at 75 per cent. of the ordinary premium, the balance being advanced annually by the Society as a loan on the Policy, as fully explained in the Society's prospectus. These assurances share in profits on the ordinary basis.

**Endowment Assurances.**—Policies under Table VIII. provide an assurance payable during the life-time of the assured on his attaining a given age or earlier in the event of death, thus combining a provision for the family in the event of the early death of the assured, with a provision for himself in the event of his attaining the specified age. The assured also knows the utmost sum he can be called upon to pay.

The bonuses declared by the Society on these assurances have been very large. From the table given below (which is based on the past experience of the Society) it will be seen that the assured enjoyed the benefit of a steadily increasing life assurance until the maturity of the policy, at which date the amount paid showed a return of all the premiums paid with compound interest.

It should be clearly understood that the figures given refer to results achieved in the past, and are not intended as estimates for the future. The future bonuses of a Life office depend on the profits yet to be made.

**AMOUNTS TO WHICH POLICIES FOR £1,000 UNDER TABLE VIII. TAKEN AS MATURING IN 1895 WOULD HAVE INCREASED:—**

Age at Entry.	Maturing Age		
	55	60	65
	£	£	£
30	1,716	1,851	2,018
35	1,614	1,729	1,852
40	1,533	1,626	1,750

## Equity and Law Life Assurance Society.

The policies above referred to, with the exception of those under Table III. of Prospectus, after having been in force more than one year, carry an interim bonus.

### Policy Conditions.

The Society's *policies are indisputable*, except on account of fraud. They are also *unconditional*, except in certain cases, as to residence and occupation.

**Invalid Lives.**—On the grant of a policy on the life of a person who is believed to have an expectation of life less than the average, the age is taken as increased by a certain number of years corresponding to the additional premium charged. Then in all calculations as to the amount to be reserved for the policy and the distribution of Bonus, the life is always treated as if the assumed age at entry had been the real age.

### Reversions and Loans.

The Society invests largely in the *purchase of Reversions*, and grants *Loans* upon Life Interests and other approved security.

### Premium Rates.

SPECIMEN TABLE.

Assurances for the Whole of Life.			Endowment Assurances with Profits.				
Ages at Entry.	With Profits	Without Profits.	Payable at Age 55.	Payable at Age 60.	Payable at Age 65.	Ages at Entry.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		
25	2 3 2	1 18 4	3 5 3	2 16 8	2 10 10		25
30	2 8 10	2 2 9	4 0 4	3 7 9	2 19 8		30
35	2 15 10	2 8 10	5 3 1	4 3 2	3 11 2		35
40	3 4 6	2 17 0	7 0 10	5 6 4	4 7 4		40
45	3 15 7	3 7 9	—	7 5 2	5 11 9		45
50	4 10 9	4 1 9	—	—	7 11 9		50
55	5 12 6	5 0 11	—	—	—		55

For further particulars reference is made to the Society's Prospectus.

18, LINCOLN'S INN FIELDS, LONDON, W.C.

# GRESHAM LIFE ASSURANCE SOCIETY, LIMITED.

## Constitution.

The GRESHAM LIFE ASSURANCE SOCIETY was founded in the year 1848, with a capital of £100,000, for the Assurance of Human Life, the Endowment of Families, the Sale of Annuities, and the Extension, by increased facilities, of the benefits of Life Assurance.

## The Accumulated Funds.

These amount to more than Six Millions of Pounds.

## The Valuation of Liabilities.

The Actuarial Valuations under the provisions of the Life Assurance Companies' Acts are made quinquennially.

At the last investigation, as at 31st December, 1895, there were 65,254 policies in force, assuring (with bonuses) the sum of £21,961,856, and 3,926 annuities, securing an annual payment of £156,323.

The Tables of Mortality employed in the Valuation were :

1. The H<sup>m</sup> Tables of the Institute of Actuaries.
2. The Endowment-Assurance Experience Tables of the Society.

Rate of interest  $3\frac{1}{2}$  per cent.

COMPARATIVE TABLE OF RATES FOR ASSURANCE  
OF £100.

Age next Birth-day.	Whole-Life Assurances.		Endowment Assurances									Age next Birth-day.
	With Profits	Without Profits.	Without Profits.			With Capitalised Profits.						
			Payable at Age 55.	Payable at Age 60.	Payable at Age 65.	Payable at Age 55.	Payable at Age 60.	Payable at Age 65.				
			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		
20	£ 8 s. d.	£ 8 s. d.	£ 2 s. d.	£ 2 s. d.	£ 1 s. d.	£ 2 s. d.	£ 2 s. d.	£ 2 s. d.	£ 2 s. d.	£ 2 s. d.	20	
25	18 10	12 8	6 5	2 11	1 19 2	2 11 10	2 6 10	2 3 9	25			
30	3 3	1 17 0	2 15 6	2 8 9	2 4 8	3 2 0	2 14 6	2 9 11	30			
35	9 0	2 2 8	3 8 10	2 18 6	2 12 3	3 16 11	3 5 4	2 18 5	35			
40	16 3	2 9 10	4 9 11	3 12 2	3 2 5	5 0 5	4 0 8	3 9 9	40			
45	5 8	2 18 10	6 5 1	4 13 9	3 16 10	6 19 10	5 4 10	4 5 11	45			
50	18 0	3 10 10	9 16 1	6 10 2	4 19 10	—	7 5 6	5 11 7	50			
55	14 9	4 6 10	—	10 2 2	6 17 6	—	—	7 13 8	55			

## **Gresham Life Assurance Society, Limited.**

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### **Policy Conditions.**

The conditions have been framed in an exceptionally liberal manner, and the policies, subject to the payment of the premiums, may from the outset be relied upon as an absolute and indefeasible market security.

### **Surrender Values.**

These are allowed in accordance with the tables printed in the last returns to the Board of Trade.

### **Payment of Claims.**

Claims are paid immediately on proof of death and title, and the Society recognises the jurisdiction of the Scottish and Irish Courts in questions relating to policies effected through its branch offices in Scotland and Ireland respectively.

### **Naval and Military Officers.**

Inclusive rates have been prepared, covering the risks of Civil and Military lives proceeding to or resident in India (including Burmah and Ceylon), China, the Malay Peninsula, and the Islands of the Indian Archipelago. "Whole-world and War Policies" granted.

### **Reversionary Life Interests.**

Advances by way of Mortgage are made on Securities of this nature, coupled with the necessary assurances.

### **Loans.**

The Society grants Loans upon the security of their Whole-Life and Endowment-Assurance policies, subject to office regulations. These can be obtained upon short notice without troublesome formalities, and at the expense of the stamp duty only.

### **Pensions for Old Age.**

The Society's new rates for Deferred Annuities meet all cases in which it is desired to make provision for the declining years of life.

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**Chief Office: St. Mildred's House, Poultry, E.C.**  
**West End Office: 2, Waterloo Place, Pall Mall, S.W.**

# IMPERIAL LIFE INSURANCE COMPANY.

## Constitution.

The Imperial Life Insurance Company was established in 1820 with a Capital of £750,000, and undertakes the business of Life Assurance in all its forms, as adapted to the requirements of modern practice.

## The Accumulated Funds

now amount to over £2,300,000

## The Valuation of Liabilities

for the five years ending 31st January, 1896, was made on the Institute of Actuaries' H<sup>m</sup> and H<sup>m</sup> 5 Tables, combined with 3 per cent. interest for With-Profit Policies (the bulk of the business), and 3½ per cent. for Without-Profit Policies, excluding the business of Offices transferred to the Company.

## Premium Rates

are exceptionally low, as shewn by the accompanying table.

SPECIMEN TABLE

Assurance for the Whole of Life				Endowment Assurances with Tontine Bonus									
Ages at Entry.	With Profits			Without Profits			Payable at Age 55	Payable at Age 60	Payable at Age 65.	Ages at Entry.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
25	2	1	11	1	16	7	3	0	8	2	11	8	25
30	2	6	11	2	1	2	3	14	3	3	1	3	30
35	2	13	6	2	7	2	4	15	6	3	15	9	35
40	3	2	1	2	15	2	6	10	11	4	17	8	40
45	3	13	2	3	5	8	10	1	6	6	14	0	45
50	4	7	5	3	19	4	—	—	—	10	4	9	50
55	5	6	6	4	17	11	—	—	—	—	—	—	55
										10	10	6	

## Policy Conditions

are very liberal, the Company's Policies, with but very few exceptions, being issued world-wide free of expense, and unconditional as to residence and occupation.



## **Imperial Life Insurance Company.**

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### **Surrender Values**

are liberal, and guaranteed on the face of the Policy.

### **Payment of Claims**

is made immediately on proof of death and title, and the Company has established the precedent of paying the amount required to meet Death Duties before the grant of Probate or Administration.

### **Naval and Military Officers**

may obtain Policies under the Company's Navy and Army Scheme, free of liability to extra premium, for occupation and foreign residence, including the risk of war.

### **Reversions and Life Interests**

are purchased by the Company, or accepted as securities for loans.

### **Loans**

are granted by the Company on the security of its own Policies within their surrender value, or on Policies prior to their acquiring surrender value, on a bond entered into by the borrower, with personal sureties.

### **Pensions for Old Age**

are granted on favourable terms, the Company's system of "Perfected" Pensions affording safe and remunerative investment for those desiring a permanent provision for old age.

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**Chief Office—London: 1, Old Broad Street, E.C.**  
**West End Office—22, Pall Mall, S.W.**

# THE MARINE AND GENERAL MUTUAL LIFE ASSURANCE SOCIETY.

## Foundation.

The Society was established in 1852, and transacts every description of Life Assurance and Annuity business. The Society has also a Marine Department for the Insurance of Mariners' and Passengers' Baggage and personal effects, but **by its constitution is not permitted to undertake the Insurance of Ships or Cargo.** The Society is purely Mutual, and the whole of the profits belong to the With-Profit Life Policy-holders.

## Non-Liability of Members.

By a special clause in every policy issued, it is provided that the funds and property of the Society are alone liable to make good all claims and demands in respect of such policy, and that *no Member of the Society shall incur any personal responsibility.*

## Valuation.

The last Quinquennial Valuation of the Society took place as at 31st December, 1894, and was made on the following strict basis:—

Three per cent. interest was assumed throughout the calculation, the Mortality Tables employed being—

For Assurances,  $H^m$  and  $H^m$ .

For Annuities, the latest Government Experience and the Carlisle Tables.

The net Premiums only have been valued as an asset.

Heavy additional Reserves have been made for Assurances on the Lives of Mariners, and every known liability has been provided for.

On these data the following results were disclosed:—

Assurance Fund, 31st December, 1894	...	£728,665
Net Liability under all contracts	...	598,439
<b>Surplus</b>	... ..	<b><u>£130,226</u></b>

# The Marine and General Mutual Life Assurance Society.

## Bonus.

Of this surplus of £130,226, £79,820 was divided, yielding a bonus of £2 10s. per cent. per annum on Whole Life Policies of five years' standing, and £2 per cent per annum on those taken out during the quinquennium; on Endowment Assurances four-fifths of the above.

Although it is generally preferred to leave the Reversionary Bonus as an addition to the sum assured, yet the Bonus may be applied in various ways as shown in the following specimens. The values given also for the surrender of the entire policies will be found to be most satisfactory.

## EXAMPLES OF BONUSSES AND SURRENDER VALUES.

EXAMPLES				OPTIONS										Total Premiums paid to 1st January, 1895		
of LIFE POLICIES in force on 1st January, 1895				in respect of BONUS ONLY.					in respect of ENTIRE POLICY.							
Date.	Age at Entry.	Sum Assured.	Bonus Additions to 1st Jan., 1895	Cash Value of Bonus Additions	or Premium reduced to		or Premium extin- guished after age		Total Cash Surrender Value	or Loan of		or Reduced paid up Policy free from ordinary Premium				
		£	£	£ s d	£	s	d	£	s	d	£	Sum Assured	Bonus in full	Together	£	
1853	24	200	187	123 5 0	Premium extinguished leaving part Bonus still attached			211	12	2	190	119	187	306	182	
1859	24	500	420	251 2 5				432	4	1	390	304	420	724	389	
1864	22	100	72	36 2 5				63	17	10	57	51	72	123	63	
1869	31	100	63	34 11 4				63	14	0	57	49	63	112	67	
1874	26	1,000	520	227 5 10	5	15	4	52	416	1	7	375	363	520	883	476
1879	35	2,000	790	378 11 5	27	9	6	60	745	18	0	670	642	790	1,432	919
1884	28	2,000	510	195 15 0	32	18	4	58	379	0	0	340	385	540	925	511
1889	26	3,000	435	131 10 2	57	14	8	62	265	19	7	240	298	435	733	398

It will be seen that the Cash Surrender Values and Paid-up Policies offered compare favourably with the total premiums paid, and, further, that the premiums so paid are practically replaced by the Bonus additions.

The same rate of Bonus has now been paid without interruption for 30 years.

## **The Marine and General Mutual Life Assurance Society.**

### **Endowment Assurances.**

Policies payable at a given age or at previous death are becoming daily more popular, and the heavy bonus paid by the Society on these policies renders them a very profitable investment.

The sum assured is payable at death or on the anniversary of the policy **next before** the specified age is attained, *e.g.* Should a person take out a policy nine months before a birthday he receives the sum assured **nine months before** reaching 50 or 60, or whatever age is fixed.

The Directors have also provided for the final bonus being paid to Endowment Assurances which mature during the current quinquennium at the full rate of £2 per cent. per annum, instead of the usual **interim** bonus of £1 per cent. per annum payable on death claims.

### **Moderate Premiums.**

The Society's rates are extremely moderate without giving rise to any uneasiness as to their sufficiency, while the policy conditions contain the most desirable privileges.

### **Provident Assurances for Children.**

The Society has recently added a valuable scheme for the benefit of children, at half the ordinary rates for assurances. Under this scheme no medical examination is required. The rate at age 5 is £1 per cent.

The Society also offers—

### **5 per cent. Investment Trust Assurances,**

and adopts every scheme that is likely to be of real benefit to its members.

**Head Office: 14, Leadenhall Street, London, E.C.**

# METROPOLITAN LIFE ASSURANCE SOCIETY.

## Constitution.

The Metropolitan Life Assurance Society was established in the year 1835 on the mutual principle, and in 1885 was incorporated under the Companies' Acts, 1862 1883.

**The Object of the Society** is to provide assurance of fixed amount for the whole of life at the least cost, and with this aim all surplus is applied exclusively in reduction of premium.

**An Annual Valuation** of the Assets and Liabilities is made and, according to the amount of surplus thus ascertained, a reduction of premium is declared for the ensuing year on all policies of five years' duration and upwards.

**The distinguishing Features of the Society** are :—

1. That, being an association for mutual benefit, all surplus belongs to the assured.
2. That its method of bonus distribution is designed to reduce the burden of life assurance.
3. That it obtains its business without paid agents, *on the non-commission system.*

The last-mentioned principle, namely, that of paying no commission for the introduction of new business, operates in favour of the assured in more ways than one, viz. :—

- (a) It directly reduces the expense rate to a minimum.  
Ratio of expenses to premium income, 7·6 per cent.  
Ratio of expenses to total income ... 5·1 per cent.
- (b) It indirectly affects the rate of mortality experienced, because the members introduce new lives for the general good of the Society and not for any special advantage to themselves in the form of commission.

**That a certain selection is thus exercised is evidenced by the following figures :—**

## Metropolitan Life Assurance Society.

Age.	Death Rate per 1,000		Expectation of Life.	
	Hm	Metropolitan.	Hm	Metropolitan.
30	7.72	3.74	34.68	37.16
40	10.31	7.72	27.40	29.20
50	15.95	13.42	20.31	21.23
60	29.68	27.78	13.83	14.38

The practical result of a low expense rate combined with a light mortality is shown by the bonuses hitherto declared, thus :—

	Rate of Abatement.	
	After first 5 years.	Present Rate.
Policies of 1st Series (opened in 1835)	40 %	71 %
„ 2nd Series (opened in 1867)	43 %	56 %
„ 3rd Series (opened in 1879)	36 %	41 %

For the Fourth Series (opened in 1895) a provision is made for reduction by 31 per cent. after five years duration, and the following figures relate to policies now being effected.

Age next Birthday.	Annual Premium for £100 Assurance.	Probable Abatement after 5 years (31 %).	Balance payable (with prospect of gradual further reduction).
	£ s. d.	£ s. d.	£ s. d.
25	2 4 0	0 13 8	1 10 4
30	2 9 9	0 15 5	1 14 4
35	2 17 5	0 17 10	1 19 7
40	3 6 4	1 0 7	2 5 9
45	3 18 11	1 4 6	2 14 5
50	4 12 0	1 8 6	3 3 6

**N.B.—If desired, one-fourth of the premium during the first five years may be left on credit at four per cent. interest.**

## **Metropolitan Life Assurance Society.**

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### **Future Prospects.**

Owing to the continuous fall in the rate of interest realisable on first-class investments, which affects the Society in common with all Life Offices, it is probable that the progress of the rate of abatement of premiums in future will not be quite so rapid as in the past; but the principle of strict economy of management and the general advantages of the mutual system must still enable the Society to show the same superiority of results in comparison with those of proprietary and commission paying offices.

### **Basis of Valuation.**

The Liabilities of the Society are valued annually by the H<sup>m</sup> Table with interest at  $3\frac{1}{2}$  per cent., and the Assurance Fund at present amounts to upwards of £2,000,000, while additional funds, now amounting to £55,000, are being gradually built up to provide against fluctuation in the value of securities and any further fall in the rate of interest.

### **Special Security.**

The fact that the abatement of premium is declared for one year only is in itself an element of financial strength; because provision for future abatement is made as if the reduction were permanent, and the sum set aside on this account (now £940,024) forms an extra reserve for the security of the assured.

### **General Advantages.**

Freedom from restriction as to foreign residence and travel.

Surrender values allowed after payment of the first year's premium.

Non-participating Policies granted at low rates.

Loans made on Policies at 4 per cent. interest.

Prompt Settlement of Claims.

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**Chief Office : 13, Moorgate Street, London, E.C.**

# THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK.

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## Constitution.

The Company was founded in 1842, on the mutual principle, under which the whole of the accumulated Funds and Surplus are the property of the insured. The Policy-holders, by special charter and under the laws of the United States and of Great Britain, incur no liability.

## Security.

The Company holds Funds amounting to upwards of £45,000,000, and the investments are scheduled in detail in the returns to the Insurance Departments of the United States, by whom the securities are examined and valued. In Great Britain the Company is under the Life Assurance Companies' Acts, and makes annual and valuation returns to the Board of Trade.

With accumulated Funds of £45,000,000, American State supervision, and compliance with the requirements of the British Board of Trade, the Company offers the highest security obtainable from any financial institution.

## Fifty-three Years' Record.

The claims of the MUTUAL LIFE OF NEW YORK to public confidence are founded upon a record unparalleled in the history of Life Insurance, no less in regard to the magnitude of its transactions than to the substantial benefits conferred upon its Policy-holders.

During the 53 years of its existence the Company has received from Policy-holders in Premiums, and by way of consideration for Annuities, the sum of £116,344,351 11s. 10d., has returned to them £84,658,004 13s. 4d., and on the 31st December, 1895, held for the benefit of its Policy-holders the sum of £45,276,563 10s. 7d. Thus the amount paid to and held for Policy-holders exceeds the amount received by £13,590,216 12s. 1d., after paying all expenses.

## British Branch.

All Policies issued by the Company in the United



## **The Mutual Life Insurance Company of New York.**

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Kingdom are subject to British law, and while the British Policy-holder has this protection, he at the same time fully participates in the Profits derived from the Company's American business, on the same footing as American Policy-holders. The bearing of this provision on

### **Valuation and Distribution of Profits.**

This Company has its Liabilities and Assets valued every year, and a Distribution of Surplus made annually to each Policy-holder who is entitled to receive his Bonus in that year. The times at which each Policy-holder receives Bonuses are stated in his Policy.

When a proposal is made for insurance, the proposer has the choice of having his Profits vest after 5, 10, 15, or 20 years. This choice, when made, is the "Distribution Period." At the end of the first distribution period the owner of a Policy, whether Whole-Life or Limited-Payment Life, has the following options :—

*First.*—Surrender the Policy and Bonuses for Cash.

*Second.*—Take the Cash Value in the shape of a paid-up Participating Policy, payable at death, and draw annually an Annuity equal to  $3\frac{1}{2}$  per cent. upon such paid-up Policy, which will be increased by future Bonuses. This option is not given under 5-Year Distribution Policies.

*Third.*—Surrender the Policy for a paid-up Policy, and draw the accumulated Bonuses in Cash.

*Fourth.*—Surrender the Policy and Bonuses for an Annuity during the rest of life.

*Fifth.*—Continue the Policy according to its terms, and draw Bonuses in Cash.

*Sixth.*—Continue the Policy according to its terms, the Bonuses remaining to increase the original amount insured (except under 5-Year

## **The Mutual Life Insurance Company of New York.**

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Distribution Policies, this is subject to two years' previous notice or medical examination).

*Seventh.*—Continue the Policy according to its terms, and use the Bonuses to purchase a Life Annuity.

### **Policies Issued.**

The Company issues various kinds of Policies, one or other of which will be found to meet every desirable requirement that can be covered by Life Insurance.

#### **Income Life.**

These Policies provide insurance for life, but give the option of terminating the transaction at the end of the distribution period, so providing endowment assurance at a low whole life rate.

#### **Five per Cent. Debenture.**

This contract provides that, instead of the principal being paid to the Beneficiary at the death of the Insured, it is held in trust by the Company which pays an income at the rate of five per cent. per annum to the Beneficiary for twenty years, at the expiration of which time the Company pays the whole of the principal. Should the Beneficiary die sooner than twenty years after the death of the Insured, the principal is paid to the estate of the former

#### **Endowment Assurance with Life Option.**

The amount of this Policy is paid to the Insured at the expiration of the selected Endowment period, or to his estate should the Insured die before the expiration of that period. A Valuable Option has, however, been added to these conditions. The Company undertakes to hold the amount of the Policy and Bonuses from maturity till the death of the Insured, paying him an income for life at the rate of 4 per cent. per annum, and paying the principal to his estate at death.

## **The Mutual Life Insurance Company of New York.**

### **Continuous Instalment.**

Under this Policy it is provided that the Sum Assured shall be paid by 20 equal annual instalments, the first payment being made immediately after acceptance of proof of the death of the Insured. If the Beneficiary survive the Insured by more than 20 years, the instalments, which are at the rate of 5 per cent. upon the sum assured, will be continued annually during the entire lifetime of the Beneficiary.

This Policy provides a Life Income at Minimum Cost, creating from the outset a trust for the benefit of the Beneficiary which guarantees an absolutely certain income for the whole lifetime of the Beneficiary after the death of the Insured.

### **General Observations.**

The Policies of the MUTUAL LIFE INSURANCE COMPANY OF NEW YORK combine, in the most liberal and perfect form of contract, the following valuable features:—

Remission of Income Tax.

No Restriction as to Residence, Travel, or Occupation after two years.

Profitable Investment.

Privilege of carrying Insurance only while it may be deemed necessary.

Large Cash Return during Life.

Payment of Claims immediately on acceptance of Proofs of Death and Title.

Option of extending Insurance in case of inability to continue after Third Annual Payment.

**Head Office for the United Kingdom: 17 & 18,  
Cornhill, London, E.C.**

**General Manager, D. C. HALDEMAN.**

# NORTH BRITISH AND MERCANTILE INSURANCE COMPANY.

## Constitution.

The Company was established as a Life Office in 1823. It transacts both Fire and Life Insurance business, but the accumulated funds of each department are by special Act of Parliament kept entirely separate and distinct, the funds of the one department not being available for the obligations of the other. The Life business, while thus completely separated from the Fire business as regards liability, shares with the Fire department many items of expense, and enjoys the full advantage of its widespread connection.

**The Valuation of Liabilities** for the five years ending 31st December, 1895, proceeded upon the Institute of Actuaries' H<sup>m</sup> Table, the rate of interest assumed for the future being 3 per cent only. The rate of interest actually realised has, so far, exceeded 4 per cent.

## Explanation of the Bonus System.

For each year's premium received in a quinquennium a Bonus Addition is made to the sum assured, payable therewith, this addition being calculated upon the *Compound Plan*, that is to say, not only upon the original assurance but also upon any previous Bonus attaching to the Policy.

### AT THE LAST DIVISION OF PROFITS

The Bonus declared, *calculated on the original assurance alone*, ranged from £1 6s. per cent. per annum on new Policies to £2 13s. 4d. per cent. on the oldest.

Policies for £100 amounted after the Declaration of Bonus for 1895 to the sums shown below, according to their respective durations:

In force.	Total Insurance.	In force.	Total Insurance.
5 years	... £106 10 0	40 years	... £166 14 10
10 "	... 114 4 3	50 "	... 187 18 0
20 "	... 130 18 3	60 "	... 215 6 0
30 "	... 147 16 0		

The oldest Policies have been more than Doubled in Amount by the addition of Bonuses.

## Intermediate Bonus.

The Company allows a prospective or Intermediate Bonus at the rate of £1 per cent. per annum

## **North British and Mercantile Insurance Company.**

to all participating Policies which become payable between dates of division: thus the Assured participate in effect in an Annual Division of Surplus.

### **General Privileges and Facilities.**

The practice of this old-established Company has been amended from time to time, to meet, in a liberal degree, the views and requirements of modern days; and by the arrangements now instituted, the assurance afforded is rendered as *liberal, secure, and simple* as it can well be.

### **Payment of Claims—Death Duties.**

Claims are payable, age being admitted, immediately on proof of death and title.

The Company is prepared to add, if desired, a clause, both to new and existing (unencumbered) policies, making the sum assured, or part thereof, at once available for meeting Duties payable *before* Grant of Probate or Administration.

### **Surrender of Policies.**

For surrender of Whole-Life policies at uniform premiums after payment of three years' premiums, and of Limited-Payment Life and of Endowment-Assurance policies after payment of two years' premiums, the office will allow a cash value, the MINIMUM amount of which, including the value of any bonus, is 40 per cent. of the premiums received, exclusive of any extra premium and that received for the first year.

### **Foreign Residence and Travel.**

Policies become free of all restrictions in these respects after 5 years, and are free from the outset if the assured, having attained the age of 25, satisfies the Directors that he has no intention of proceeding beyond the usual limits.

### **Naval and Military Officers.**

By a simple and inexpensive system, every risk of war or climate to which Officers may be exposed can be provided for.

### **Loans upon Policies.**

Loans are granted upon security of the surrender values of Policies; and if the title is simple, these loans are carried out very expeditiously, and (as a rule) without legal expenses.

## **North British and Mercantile Insurance Company.**

### **Under-Average Lives.**

The Directors are prepared to receive proposals in such cases, and to treat them on their merits, by making an addition to the ordinary Premium, or by accepting the ordinary Premium and making a deduction from the sum assured should the usual expectation of life not be realised.

### **The Various Systems of Assurance.**

The Company has a number of different Tables, designed to meet various wishes and circumstances.

The Prospectus contains rates for—

**Whole-Life Assurance, payable at death.**

By Premiums uniform throughout Life.

By Premiums very low for the first five years.

By Premiums ceasing after an agreed number of payments—Non-forfeitable Policies.

**Endowment Assurance, payable at fixed date, or at Death, if previous—Non-forfeitable Policies.**

**Family Settlement Policies, by which the proceeds of Insurance on a Husband may remain in the hands of the Company during the life of his Widow at 5 per cent. interest.**

**Survivorship Assurances, payable if one Life predecease another.**

**Assurance on Two Lives, payable at first death.**

**Children's Endowments.**

**Assurance for Short Terms only.**

**Provident Insurances on Children.**—A new system by which children may, on reaching manhood, have the benefit of assurance at an exceptionally low rate of premium, and irrespective of the state of health at that time.

### **Annuities.**

The Company's New Annuity business exceeds that of any Company in the world. It grants on favourable terms, accompanied by exceptionally good security,

**IMMEDIATE ANNUITIES** on one or more lives,

**SURVIVORSHIP ANNUITIES,**

**DEFERRED ANNUITIES OR PENSIONS,**

**ANNUITIES** certain for fixed periods, not depending on life.

**Chief Offices:—** { London: 61, Threadneedle Street, E.C.  
                          { Edinburgh: 64, Princes Street.

# NORWICH UNION

## LIFE INSURANCE SOCIETY.

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### Constitution.

The Society was established on the Mutual principle in the year 1808, and has thus existed for 88 years, while in 1866, it took over the business of the old Amicable Society, founded by Royal Charter in the reign of Queen Anne, and the united societies thus constitute **the Oldest Life Office in the World.**

### Financial Strength.

The combination of security offered by the Society is believed to be unsurpassed by any other Life Office. Its Reserves have been strengthened at each successive Investigation, and now exceed the amount required by a strictly net premium Valuation on the Institute of Actuaries' Table, reckoning 3 per cent. interest only.

### Bonuses.

The entire Profits of the business, including the large Non-participating and Annuity Departments, belong to the Members, there being no shareholders to absorb any portion of these. As a result of this advantageous arrangement, Bonuses amounting to upwards of £3,000,000 have already been declared.

New Business (1895) ...	£1,502,440.
Annual Income (1895) ...	£435,236.
Invested Funds exceed ...	£3,000,000.

### Claims paid over £20,000,000.

Prospectuses, Reports, and full information as to Society's New Schemes of Insurance, including **Old-Age Pension Scheme**, will be sent on application.

**Head Office: Norwich.**

**London Offices: 50, Fleet Street, E.C., 10, King William Street, E.C., 195, Piccadilly, and 1, Victoria Street, Westminster.**

# ROCK LIFE ASSURANCE COMPANY.

## Constitution.

The ROCK LIFE ASSURANCE COMPANY was established in 1806, with a nominal capital of £1,000,000, of which £100,000 was paid up. The Company have now an Accumulated Reserve of £1,000,000 in addition to Assurance Funds.

## Wealth.

Accumulated Funds	...	...	...	£3,038,064
Paid in Claims upwards	...	...	...	£11,300,000
Profits divided among Policy-holders	...	...	...	£4,140,600

## Stability.

Established in 1806, and has therefore transacted business for nearly *a century*.

## Security.

At the last valuation made as at 31st December, 1895, under the Life Assurance Companies Act, 1870, the Liabilities under the Assurance and Annuity Contracts of the Company amounted to £1,719,384. The Life Fund for providing the same £2,036,978 6s. 9d. In addition to which there is the Subscription Capital Stock of the Company, amounting to £1,001,086, making the Total Funds of the Company £3,038,064 4s. 7d., and an uncalled capital of £450,000.

## Valuation of Liabilities.

The Table of Mortality used in the valuation is the Institute of Actuaries' Healthy Male Tables for the Assurances, and The Government Annuity Tables (Finlaison), 1882, for the Annuities.

The rate of Interest assumed is 3 per cent. for Policies With Profits, and  $3\frac{1}{2}$  per cent. for Policies Without Profits, and  $3\frac{1}{4}$  per cent. for Annuities.

Net premiums only were valued in respect of all policies except the ordinary Whole-Life With Profits, of which 20 per cent. of the gross premium and all



## Rock Life Assurance Company.

extra premiums were reserved in addition to the exclusion of negative values.

### Bonus System.

The system of Profit peculiar to the Rock Life is that large Bonuses are reserved for those Policy-holders who survive and cause a Profit—a smaller share being given to those by whose earlier death there is loss to the Common Fund. Thus the best lives secure the largest Profits.

Interim bonuses are also granted if death occurs between one division and another; and an Act of Parliament has been recently obtained with the view of ultimately granting to the Policy-holders a still larger share of the Profits of the Company.

EXAMPLES OF THE PAST PROFITS.									
THESE EXAMPLES ARE INSTANCES OF CLAIMS PAID.									
1 No. of Policy	2 Age at Entry.	3 Sum Assured	4 Bonus Additions			5 Total Amount of Policy		6 Total Premiums Paid.	
		£	£	s.	d.	£	s.	£	s.
2,378	12	250	636	9	2	886	9	329	0
4,598	19	500	848	18	4	1,348	18	629	6
4,542	24	3,500	5,942	8	4	9,442	8	4,861	7
5,483	31	2,000	2,911	13	4	4,911	13	3,002	1

THESE EXAMPLES ARE TAKEN FROM POLICIES ACTUALLY IN EXISTENCE AT THE LAST DIVISION OF PROFITS.									
		£	£	s.	d.	£	s.	£	s.
5,767	16	500	944	8	4	1,444	8	654	10
4,488	17	2,000	4,755	13	4	6,755	13	2,968	13
5,494	18	1,000	2,022	16	8	3,022	16	1,416	13
6,031	24	200	364	7	4	564	7	306	0

### Progress.

The following statement of the new business for the past seven years, compared with the new business during the previous septennial periods, will afford the best evidence of the steady progress being made.

## Rock Life Assurance Company.

	Sum Assured. £	New Premiums. £      s.      d.
Total 1889 to 1895 inclusive .	<b>2,706,577</b>	<b>96,568 15 2</b>
Total 1882 to 1888 inclusive ...	<b>1,801,766</b>	<b>64,728 3 2</b>
Total 1875 to 1881 inclusive ...	<b>1,432,929</b>	<b>48,341 15 9</b>

### Naval and Military Services.

Special facilities are offered by the **ROCK LIFE** to Officers of the Army and Navy by which the contingencies of **Foreign Residence** and **Actual Warfare** may be covered by the ordinary rate of Premium upon Life Assurance **without extra** charges under certain Tables.

### Rock Investment Policies.

By which may be accumulated small or large sums without any risk of losing the money, and the certainty of receiving back a sure and profitable return.

The Payments of Premiums can be arranged either as **Single Payments**, or **Limited to a fixed number**.

Every Premium after the first, second, or third (according to Table adopted), secures a fixed and definite Benefit, so that the **PAYMENTS MAY THEN BE DISCONTINUED AT ANY TIME WITHOUT FORFEITURE**.

The **Surrender Value** of any of the benefits then granted may at any time be **Drawn in Cash**, subject to proof of Title.

The **Capital Sum** may be made payable **at any fixed age or period**, or by way of **annuity or pension**, or **at death**, the various options being regulated simply by the number of premiums required or Table selected.

**Low Premium rates for Without Profit Policies.**

**Trust Fund Investment Policies.**

**Leasehold Sinking Fund Policies.**

**Pensions—Endowments—Investment Policies.**

**Policies made World Wide and Indisputable.**

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*Apply for the Full Prospectus at the*

**Chief Office: 15, New Bridge Street, London, E.O.**

**GEORGE S. CRISFORD, Actuary.**

## THE ROYAL EXCHANGE ASSURANCE CORPORATION.

**Constitution.**—The ROYAL EXCHANGE ASSURANCE was incorporated by Royal Charter in A.D. 1720. There is no older separate Life Company in existence.

The history of the Corporation is therefore coincident with the growth of Life Assurance in Great Britain. The ROYAL EXCHANGE is, moreover, widely known for—

- (a) The liberal treatment of its policy-holders ;
- (b) The freedom of its contracts from annoying restrictions ;
- (c) The remunerative character of the benefits granted.

**Progressive Condition.**—The great development in new business which has taken place in recent years is evidence that the Corporation fully maintains its position in the front rank of Assurance Companies, and is, therefore, deservedly supported by the insuring public.

**Unimpeachable Security.**—When an intending assurer fully realises that his contract may continue over a long period of years, he will at once recognise that the stability of the Assuring Company outweighs all other considerations.

**The Total Funds** of the ROYAL EXCHANGE exceed **Four Million Pounds Sterling**, which provide an *absolute and unquestionable guarantee* for the due fulfilment of the contracts of the Corporation.

**Large Bonuses granted to Profit Policies.**—Every five years a valuation is made of the liabilities of the Corporation, an exceptionally stringent standard being employed for this purpose, viz. the Combined Institute Mortality Tables with 3 per cent. interest.

## **The Royal Exchange Assurance Corporation.**

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The resulting surplus is then divided, large bonuses being allotted to those policies effected on the Participating System.

Many policies are at present in force on which the premiums have been entirely extinguished by bonus, and reversionary additions are made at each successive distribution of profits. At the last division of surplus (in 1895) the reversionary bonuses varied from £1 10s. per annum up to £2 16s. per annum per £100 assured, according to the duration of the policy.

**Interim Bonuses** are allotted to policies which have been five years in force, upon their becoming claims.

**Premiums.**—These will be found to be very moderate. Rates for half and quarter ages are accepted, and they may be paid by half-yearly or quarterly instalments.

**Policy Conditions.**—The contracts of the ROYAL EXCHANGE are extremely simple, the conditions having been revised to meet all legitimate modern requirements.

They embrace the following privileges :—

- (1) Extended Free Limits of Foreign Residence.
- (2) Indisputable Whole-World Policies.
- (3) Protection of Policies against Accidental Forfeiture.
- (4) Non-forfeitable Regulations.
- (5) Guaranteed Minimum Surrender Values.
- (6) Immediate Payment of Claims

**Various Modes of Assurance.**—In addition to the ordinary Whole-life and Endowment Assurances the following SPECIAL BENEFITS are granted by the Corporation :—

**Settlement Whole-Life Assurance**, which guarantees an income of 5 per cent. to the Widow (without the

## **The Royal Exchange Assurance Corporation.**

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necessity of appointing Trustees), the Sum Assured forming an ultimate provision for Children.

**Cost Price Table.**—For the convenience of those desiring to pay only a small premium without sacrificing the advantages of the bonus system, the Directors are prepared to allow a portion of the Ordinary Whole-Life Premium to remain unpaid, such portion forming a charge on the policy at 4 per cent. per annum compound interest.

**Lucrative Investment Table.**—A special contract is now granted by the Directors to those desiring a profitable return upon Sums invested.

**Instalment Policies** are now a feature of the Corporation.

In lieu of providing a *Cash* Sum at his death, for the benefit of the family, and thereby risking its total loss from bad investment, the Assured may obtain the valuable privilege of requiring the Policy-moneys to be paid in *Instalments*, extending over a term of years fixed by himself, at any time during the currency of the Policy.

**Loans** on Life Policies, Life Interests and Reversions may be arranged with despatch and upon very liberal terms.

**Pensions for Old Age** on favourable terms; also **Annuities** of almost every description.

**Annuities** of all descriptions are granted by the Corporation, special terms being quoted for Impaired Lives.

*Special Contracts are granted to suit any individual case.*

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**Chief Office: The Royal Exchange, London, E.C.**

# SCOTTISH METROPOLITAN LIFE ASSURANCE COMPANY.

## **Constitution.**

The Company, which was established in 1876, carries on all the branches of Life and Accident Assurance, besides undertaking such other business as is authorised by the Articles of Association.

## **Security.**

The Paid-up Capital of the Company amounts to £28,500, while there is an Uncalled Capital of £66,500. Over and above these two items there is the Life Assurance Fund, which at 31st December, 1895, amounted to over £271,843 (in itself alone being more than sufficient to meet all the Life Liabilities); and the Accident and General Fund, which at the same date amounted to £4,013, making a total of about £370,900.

## **Policies**

are issued under the most favourable conditions, and with occasional exceptions are from the first unfettered by any restrictions, being World-wide, Unconditional, and Indisputable. No Policy which has a Surrender Value is forfeitable by reason of failure to pay a Premium, the Guaranteed Value being applied to keep the assurance in force until exhausted, during which period the assured may either commence repayment of the premiums, or obtain the Balance of the Surrender Value due to him.

## **Premiums.**

The rates for ordinary assurances are fully 20 per cent. under those charged by most other offices.

## **Bonuses.**

Profits are distributed solely among those under whose policies there can be no risk to the Company, thus securing that the best lives receive the greatest benefits. At the same time, owing to the low rates charged, it is obvious that a substantial bonus is at once obtained, a Policy from £1,200 to £1,250 being secured for the same premium which in most other offices would assure £1,000 only.

Death, Disease and Disablement Policies, including under certain conditions an Annuity for Life, are made a special feature of in this Company.

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**Head Office : 25, St. Andrew Square, Edinburgh.**  
**London : 8, King Street, Cheapside, E.C.**

# THE SCOTTISH PROVIDENT.

## Constitution.

The Scottish Provident, instituted in 1837, is a Mutual Society, and it combines the benefits of participation in Whole Surplus with Moderate Premiums

The Policy holders are specially exempt from personal liability

## The Aim of the Founders

was to give effect to the suggestions of enlarged experience—in particular, to give to the assured the advantage of the low *non participating* Premiums, hitherto charged only by a few of the proprietary companies, without any sacrifice of the right to participate in the Surplus

## The Premiums

thus fixed are on so moderate a scale, that at early and middle ages the yearly sum generally charged in the older Mutual Offices for £1,000 (with profits) will here secure from the first as much as £1,200 or £1,250. The £200 or £250 is clearly an immediate (and certain) Bonus, as large as can be looked for in good Offices only after many years

## Comparison of Premiums.

The following Table shows the *average* of premiums charged by existing Life Offices, for Assurances payable at death, with and without profits. With these are contrasted the Premiums (on Whole Life and 21 Payments' Scales) of the Scottish Provident, under its distinctive system, which secures the Benefits of Low Premiums and Eventual Participation in the Whole Surplus. The figures are taken from the Tables in Bourne's Directory for 1895.

## The Scottish Provident.

SYSTEMS :	AGE AT ENTRY.				
	30	35	40	45	50
Average of Offices —	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
With Bonus—Life Scale	2 8 11	2 15 10	3 4 9	3 16 10	4 11 2
Without Bonus—Life Scale	2 2 1	2 8 4	2 16 4	3 6 10	4 0 11
Scottish Provident system —					
With Bonus—Life Scale	2 1 6	2 6 10	2 14 9	3 5 9	4 1 7
With Bonus—21 Payments	2 15 4	3 0 2	3 7 5	3 17 6	4 12 1

It will be seen that the rates of the Scottish Provident, on the whole-of-life scale, are at most ages actually lower than the average rates of other Offices for Assurances without right of participation in Surplus.

### The System is specially suitable

for Assurances required for Family Provisions, Purposes of Marriage Settlements, Partnership and other Business Arrangements, payment of the heavy Estate Duties recently imposed, and for all cases where it is important that the Premium be Moderate, and yet the Right to Participate in the Whole Surplus be secured.

### The Whole Surplus

goes to the Policy-holders, and is reserved exclusively for those Members (more than half of those who enter) who survive the period at which their Premiums, with compound interest at 4 per cent., amount to the original assurances. The Surplus is divided Septennially, but at each investigation contingent shares are also set apart, in advance, for those Policies which will become entitled to participate before another division, these shares *vesting* on the completion of the accumulation.

### Subsequent Bonuses.

After a *first* addition has vested, a Policy is entitled to a further (*intermediate*) share for each complete year in force since the date of the preceding division. The system thus gives the advantage of an Annual Addition on the safe average of a seven years' experience — the arrangement specially commended by Professor de Morgan.



## **The Scottish Provident.**

### **The Surplus at Last Valuation (1894)**

was £1,423,018 More than One Half of the Members who died during the last Septennial period were entitled to Bonuses which, notwithstanding that the premiums do not as a rule exceed the non profit rates of other Offices, were on the average equal to an addition of about 50 per cent to the policies which participated

### **Endowment Assurances.**

While the leading feature of the Institution's business continues to be Life Assurance (in the strict sense of the term), as the best and cheapest means of securing a provision for a family or dependents in case of death, Tables have been prepared to meet the views of those who, having regard to circumstances, may desire to combine with an immediate assurance a Provision (or Endowment) for themselves in more advanced life

### **Policy Conditions.**

The arrangements as to—

Surrender,

Non forfeiture,

Free Residence,

Loans on Policies (within their value), and

Immediate Payment of Claims,

as on all other points of practice, are conceived entirely in the interests of the members, there being in a Mutual Society no opposing interests

**The Accumulated Funds exceed £9,500,000 Sterling.**

**Head Office—6, St. Andrew Square, Edinburgh.**

**London Office—17, King William Street, E.C.**

# SCOTTISH UNION AND NATIONAL INSURANCE COMPANY.

## **Foundation.**

The Scottish Union and National dates from 1824, and now holds Total Funds of £4,473,338. The paid-up Capital is Six Millions sterling.

## **Early Bonus Scheme (E.B.).**

The following among other special advantages apply to ordinary Policies issued under this Scheme. Besides being payable immediately on proof of death and title, they are, *at the end of Three years from their date,*

Entitled to rank for Bonus Additions ;

Indisputable on the ground of Errors or Omissions ;

World-Wide without Extra Charge ; and

Liable only to Reduction in Amount on Non-payment of the Premiums.

At the Division of Profits for the Five years ending 31st December, 1894, ordinary Life policies under this Scheme received a Bonus Addition of £1 10s. per cent. for each year in respect of which they were entitled to rank.

## **Special Bonus Scheme (D.B.).**

Under this Scheme Profit Policies are issued at rates which do not exceed, and in many cases fall short of, the Non-Profit Rates of other Offices.

They share in the Profits when the Premiums received, accumulated at 4 per cent. compound interest, amount to the Sum Assured.

Policies Issued at these very economical Rates practically receive a large bonus at the outset.

At age 30, £1,200 with right to Profits can be insured for the same Premium as would be charged for £1,000 under the usual Profit Schemes of most Offices.

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**London—3, King William Street, E.C.**

**Glasgow—150, West George Street.**

**Head Office—35, St. Andrew Square, Edinburgh.**

# STAR LIFE ASSURANCE SOCIETY.

## Constitution.

This Society was founded in the year 1843. It is governed by its Deed of Settlement, and its powers have from time to time been enlarged by Acts of Parliament to meet the advancing needs of the age. It was originally constituted on properly ascertained actuarial bases, and the Directors, in the conduct of its business, have never departed from these principles.

## The Security

offered to policy-holders for the performance of the contracts entered into by the Society is undoubted. It consists, first of all, of a fully subscribed capital of £100,000, and in addition thereto an Accumulated Fund, amounting at the present time to the sum of over Three Millions and Three quarters.

## Investments.

This amount is, in accordance with the Deed of Settlement, invested in first-class securities, in the names of Trustees for the benefit of the policy-holders. Details of these investments are given with each Annual Report. The Directors have no power to invest in any but first-class "Trust" Securities.

## Valuation.

The amount of profit made is ascertained every five years by a careful investigation of the Society's affairs, and the result is vouched for as accurate by an independent Actuary of the highest standing. The total amount declared at ten divisions of Profit was £1,977,939.

## Star Life Assurance Society.

### No Extra Premiums

are charged for females, except under special circumstances, nor for healthy lives pursuing usual occupations

### Various Systems of Assurance.

The Society issues Policies for the *whole* of Life or with the amount assured payable during the lifetime of the assured, and all other kinds except Tontine Assurances

Assurance Fund	...	£3,800,000
Annual Income	...	£604 000
Claims Paid		£4,570 000
Bonuses Apportioned		£1 977,939

#### *Directors*

*Chairman*—WILLIAM MEWBURN Esq D L

*Deputy Chairman*—JOHN VANNER, Esq

Lieut-Col A M ARTHUR.	GEORGE LIDGEFF, Esq
W W BAYNES, Esq, D L	ALEXANDER McARTHUR, Esq,
SH GEORGE HAYTER CHUBB	D L
Right Hon SH HENRY LOWLER	EDWARD SPICER, Esq
GCSI, M P	Rev Dr J A SPURGEON
T MORGAN HARVEY, Esq	HIS HONOUR Judge WADDY,
ISAAC HOYER, Esq	Q C

Every information may be obtained at the Head Office, or from any of the Branch Managers in most of the large towns.

HENRY GAMBLE HOBSON, *Actuary and Secretary.*

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**Head Office: 32, Moorgate Street, London, E.C.**

# SUN LIFE ASSURANCE COMPANY OF CANADA.

## History of the Company.

The Company was incorporated by special Act of the Parliament of the Dominion of Canada, in the year 1865, as the Sun Life Assurance Company of Montreal, and in 1871 the title was changed to the Sun Life Assurance Company of Canada. One of the best tests which can be applied to any Company is the amount of business which it does at home where it, its officers, and its methods are well known. The extent to which the Sun Life of Canada possesses the confidence of the public, is shown by the fact that for several years the new assurances effected with it have exceeded, both in number and amount, those secured by any other Life Office in the Dominion, and have been equalled by but very few British Offices. The causes which have contributed to this success have been numerous. The Company's influential connections, its prudent management, and the great care exercised in the selection of lives, have all been important factors. It has also had a great advantage in the fact that its Head Office is in the Metropolitan City of Canada, where securities of undoubted quality and yielding a high rate of interest can be readily obtained. But of greater consequence, probably, than anything else was the adoption at an early stage in its history of an unconditional form of policy.

## Investments.

The assets of the Company have been invested carefully and well. No investment can be made except with the unanimous consent of the Board of Directors. Apart from the Company's Head Office building and its loans upon its own policies, within their surrender values, the securities consist almost entirely of municipal bonds and mortgages on real estate valued at two and a half times the amount of the loans. The balance due under each mortgage is checked by the auditors, who communicate directly with the borrowers. This simple and excellent system originated, we believe, in Canada at least, with this Company.

## **Sun Life Assurance Company of Canada.**

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### **Security.**

Policy-holders have an additional security in the fact that the affairs of the Company are investigated very carefully each year by the Superintendent of Insurance for the Dominion of Canada. The Superintendent and his assistants are permanent Government officials acting under the instructions of the Minister of Finance. Elaborate returns have to be furnished to them, and the Company's books and securities are at all times accessible to their inspection. The supervision is by no means a matter of form, but is conducted in a most thorough manner. Unlike most of the Insurance Commissioners in the United States, the Canadian Superintendent of Insurance is a man selected specially on account of his fitness for the position, and is entirely independent of politics or party influences. His certificate is thus of the highest value.

### **British Branch.**

The Sun Life of Canada has complied with the terms of the British Assurance Acts of 1870 and 1872, and with the requirements of the Board of Trade. The policies issued by it in Great Britain are by their terms payable in sterling at its Office in London. If any dispute should arise regarding any policy or transaction, the matter will be settled by the British Courts, and their decision will be final and binding on the Company. The Sun Life of Canada thus offers all the privileges of a local Company, together with the special advantages which arise from the fact that its Head Office is situated in a portion of the British Empire where much higher rates of interest prevail than can be obtained in the old land.

### **Profits.**

Policy-holders receive  $93\frac{1}{2}$  per cent. of the total surplus earned by the Company, and the shareholders the remaining  $6\frac{1}{2}$  per cent. By this system, the holders of participating policies receive  $93\frac{1}{2}$  per cent., not only of the profits of their own class, but also of those earned

## **Sun Life Assurance Company of Canada.**

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by the non-participating policies. They thus receive the protection of a large capital for a merely nominal sum. On ordinary policies, profits are divided every five years, counting in each case from the date of the policy. The method adopted is eminently fair to all parties, and is a modification of what is known as the "Contribution Plan."

### **On Reserve Dividend Policies**

the surplus, instead of being distributed every five years, is accumulated during the Reserve Dividend period, and the accumulation thus arising is distributed amongst those who have survived that term and have kept their policies in force. This form of policy is specially advantageous to good lives.

### **Policy Conditions.**

Policies are *indisputable* after two years. They are also *unconditional* except in certain cases as to residence and occupation. Policies are protected against accidental forfeiture. Loans are granted on policies within their surrender value.

### **Plans of Assurance.**

In addition to the ordinary plans of Whole-Life and Endowment Assurance, the Company issues Coupon Life and Coupon Endowment Policies, Semi-Endowment Policies, 5 per cent. Debenture Policies, etc. etc.

### **Annuities.**

The remunerative rate of interest obtained by the Company on its Invested Funds enables it to grant Annuities on advantageous terms.

The Company opened its business in Great Britain in 1893.

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**Chief Office for the United Kingdom : 42, Poultry,  
London, E.C.**

**Branch Offices at Manchester, Bradford, Newcastle-on-Tyne, Edinburgh, Glasgow, Aberdeen, and Belfast.**

THE  
UNITED KENT LIFE ASSURANCE  
AND ANNUITY INSTITUTION  
OR COMPANY, LIMITED.

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**Constitution.**

The Company was established in 1824 for the transaction of Life Assurance and Annuity business only, occupying as offices a part of the same building as the old Kent Fire Insurance Company, formed in 1802.

**Security.**

The security of an Office represented by the **relation which its Funds bear to the aggregate liability** of its Contracts is of paramount concern to its Policy holders. The Funds of the United Kent represent the unusually high ratio of nearly **60 per cent. of the whole of its sums assured and bounties, or 18 years' premiums in hand**, and the Office is acknowledged to stand in the front rank of the Assurance Companies of the world.

**Profit.**

The United Kent has been noted for the magnitude of its bonuses: frequent instances of doubling the original amounts of assurances under its policies have arisen, and in some cases Policy-holders have received treble the amounts of their policies, the principle being to compensate those of the Policy-holders who live to **pay the greater number of premiums** by allotting to them an **increasing proportion of bonus** at each successive distribution, instead of a stationary or reducing one.

An illustration of the value as an Investment of a Policy in the United Kent is given below:—Original



## The United Kent Life Assurance and Annuity Institution or Company, Limited.

Sum Assured, £5,000. Annual Premium, £121 5s.  
Age at entry 29. Policy issued in 1852. Expectation  
of life, 35 years

The amount standing to the credit of the Assured's  
Policy very largely exceeds his payments during his  
expected lifetime, notwithstanding that **Compound  
Interest** be added thereto at the rate of **3½ per cent.**  
£121 5s. per annum, securing an immediate provision of  
a minimum sum of **£5,000**, increasing at an accelerated  
rate every five years until the splendid result of **£8,328**  
is attained, *the Policy still continuing to be eligible for  
further similar additions during the whole course of its  
after existence.*

	Amount standing to credit of Assured's Policy	Total cash received from the Assured by the Office	Premiums paid by the person assured regarded as a ¾ per cent Investment at Compound Interest
	£	£	£
End of 5th Year	5,161	606	673
„ 10th „	5,411	1,213	1,472
„ 15th „	5,720	1,819	2,421
„ 20th „	6,304	2,425	3,549
„ 25th „	6,979	3,031	4,888
„ 30th „	7,606	3,638	6,478
„ 35th „	8,328	4,244	8,367
&c. &c	&c	&c	&c

### Policies are indisputable

and conditions liberal, and provided the Policy-holder  
is not in the regular Military or Naval Service, or of  
~~seafaring~~ occupation, become automatically whole world  
after five years. In most ~~cases~~ Policies can be made  
whole-world from commencement.

### Under-average Lives.

\*An extra rate of bonus is given corresponding to the

## **The United Kent Life Assurance and Annuity Institution or Company, Limited.**

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increased age represented by the premium paid by the Policy-holder.

### **Military and Naval Officers.**

A comprehensive scheme for covering all risks, obviating the necessity for notifying the Office previously to going abroad. No extra premium after retirement, and full bonuses as if living at home.

### **Loans on Policies**

granted with despatch to the extent of their surrender values, without law costs, when the Policies have not been dealt with, and generally at a small fee only when otherwise.

### **Death Duties.**

Special arrangements made for payment in whole or in part direct to the Commissioners of Inland Revenue.

### **Dates for Renewal**

are usually one or other of the four common Quarter-days, viz. :—Lady-day, Midsummer, Michaelmas, and Christmas, and thirty days of grace are allowed. This system has an obvious advantage, as the date of payment is always known to the Policy-holder, and the inconvenience and risk of allowing a policy to lapse by non-payment through inadvertence are avoided.

### **Claims paid immediately**

on proof of death, title, and age.

(N.B.—The Directors recommend the latter to be proved on effecting the policy, if possible).

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**Head Office : Maidstone.**

**London Office : 124, Cannon Street, E.C.**

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**REFERENCE**

